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(54) **METHOD AND APPARATUS FOR
OBTAINING, ORGANIZING, AND
ANALYZING MULTI-SOURCE DATA**

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(57) **ABSTRACT**

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G06Q 40/00 (2006.01)
(52) **U.S. Cl.** **705/35**; 705/7.29; 705/14.1; 705/14.66;
705/26.7; 705/38; 707/790; 707/803
(58) **Field of Classification Search** None
See application file for complete search history.

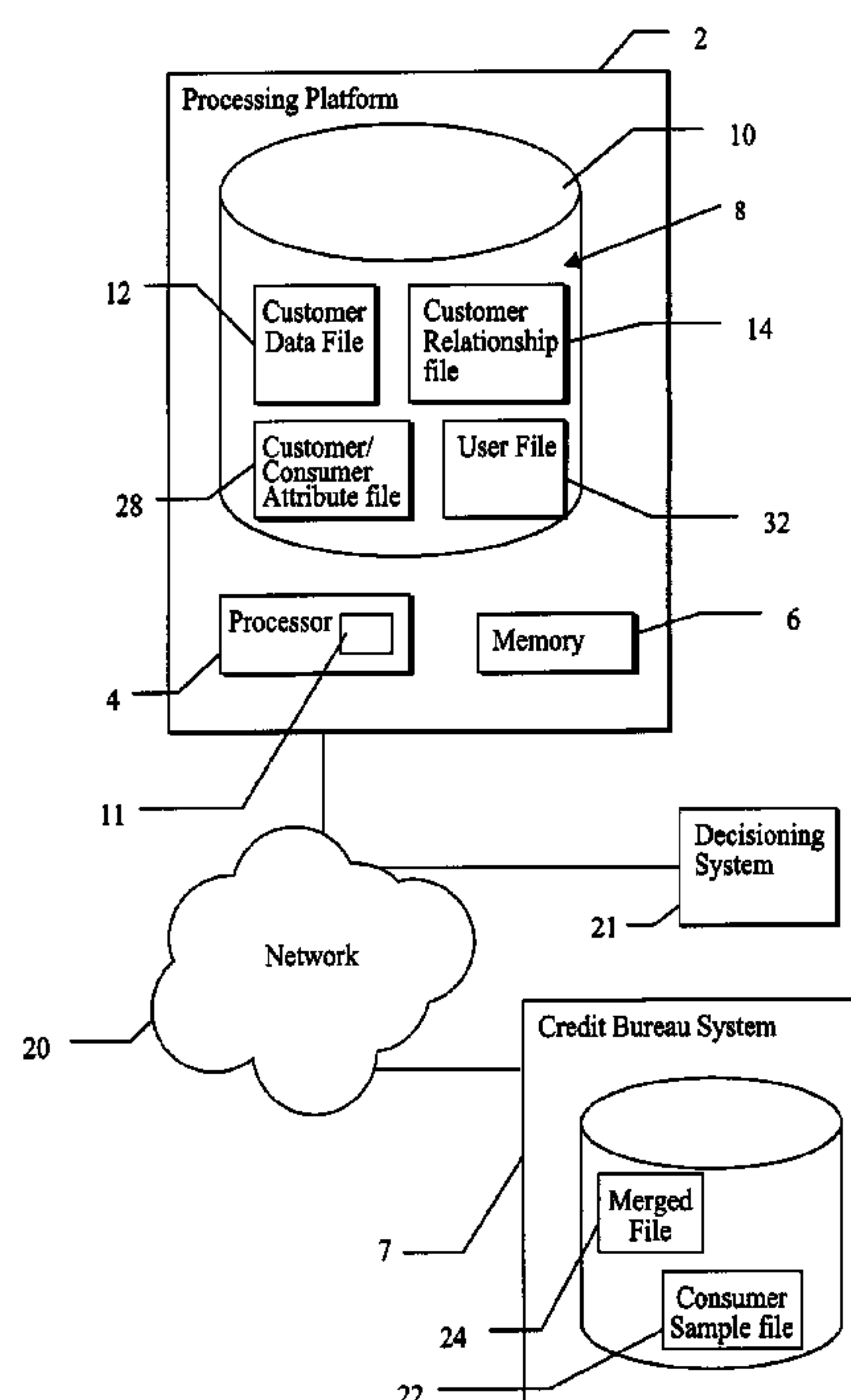
The tool of the invention is a data gathering and analytical process that uses internal customer data and external CRA data to build a consumer credit market data base and data structure. The internal customer data is classified according to identified Customer Attributes, the CRA data is also classified according to identified Consumer Attributes and the combined data is further classified according to additional Value Added Attributes. The resulting data structure is organized at the individual level such that each individual has associated therewith values for each of the Customer Attributes, Consumer Attributes and Value Added Attributes. The resulting analysis can be used to set institutional strategies and/or to make predictive decisions on individual borrower credit requests.

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17 Claims, 7 Drawing Sheets



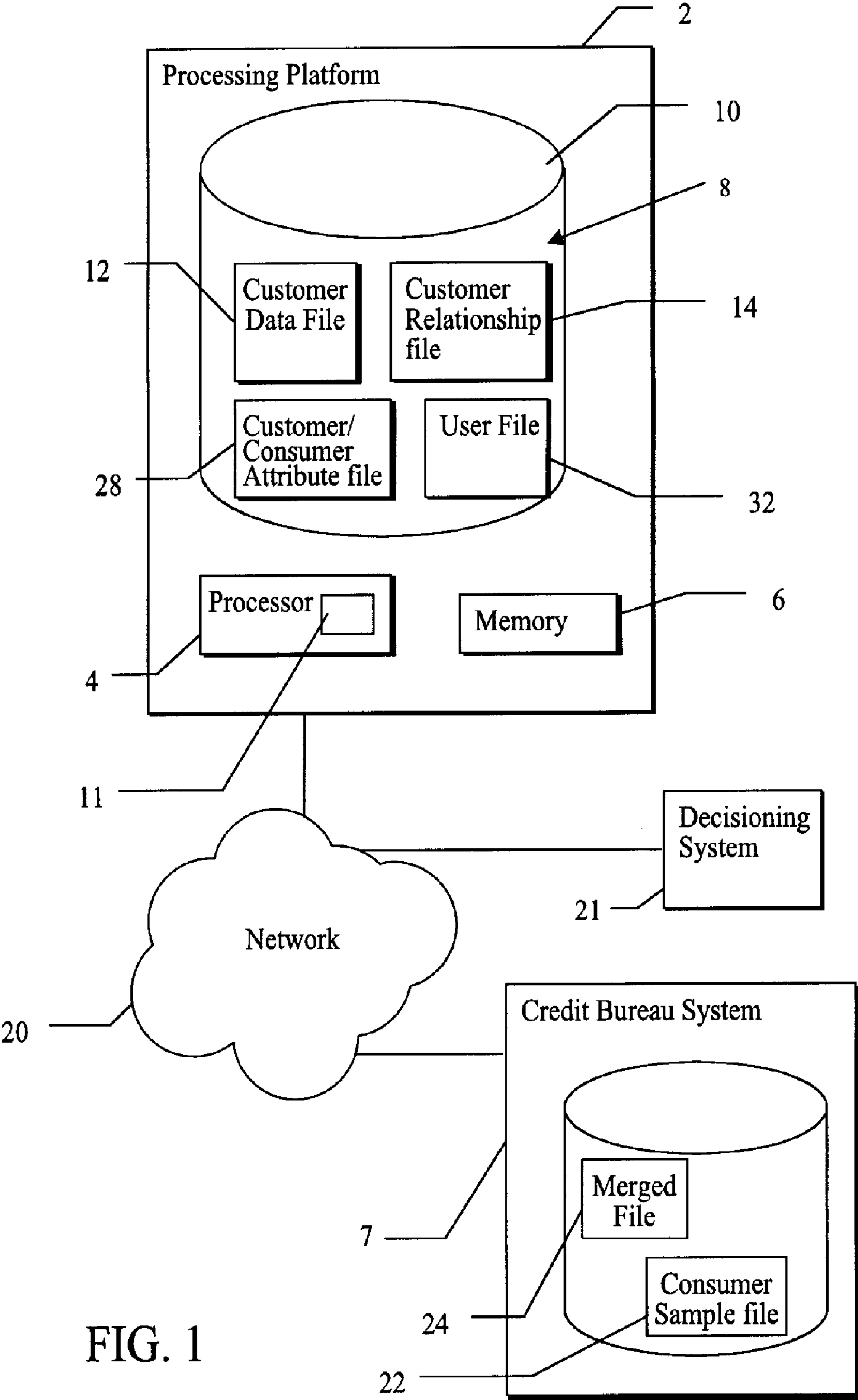


FIG. 1

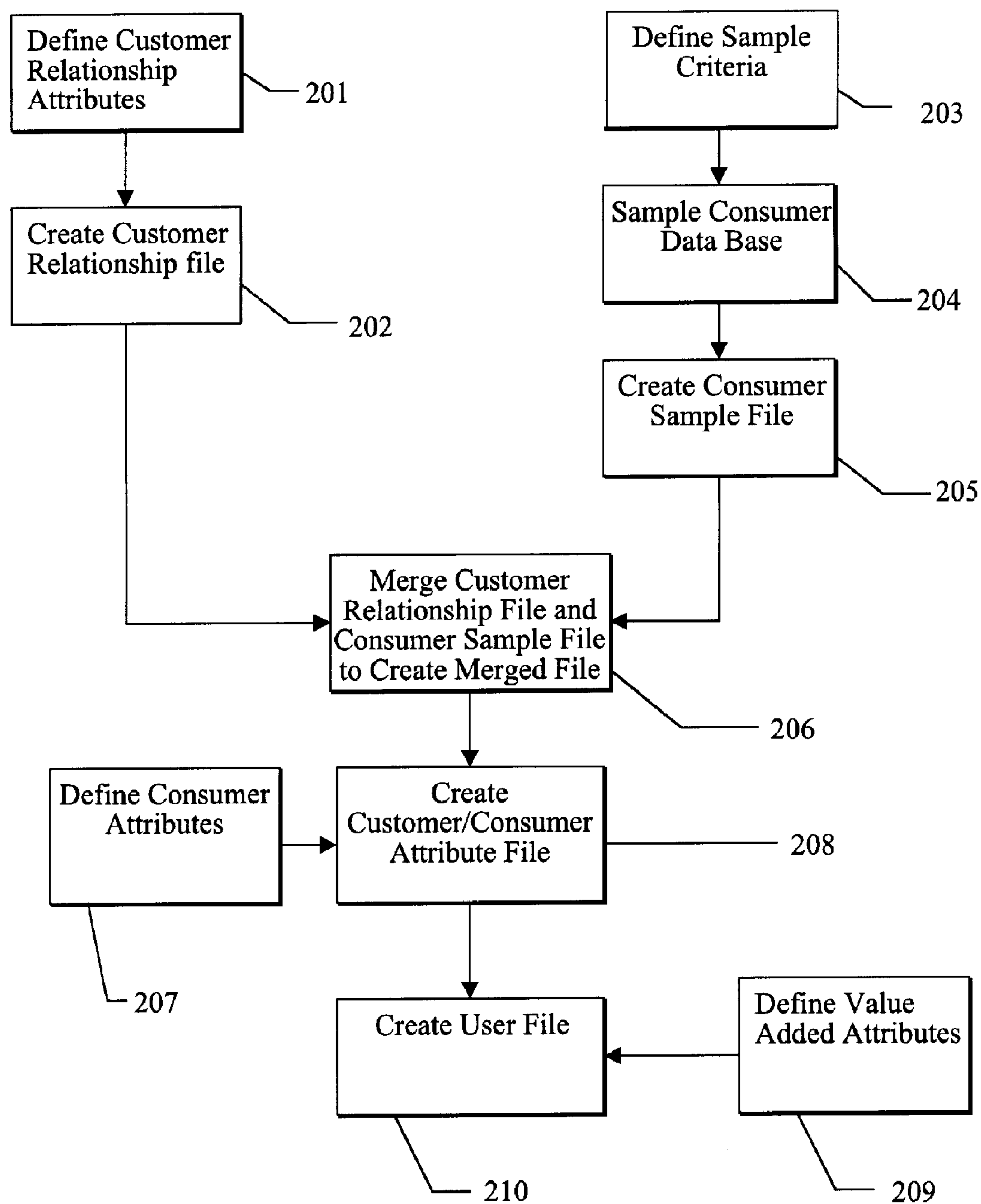


FIG. 2

CUSTOMER DATA FILE

Customer Number	Nam	Address	SSN	Account 1	Account 2	Account 3	Home Branch	ATM	On-line Banking
AAA	-----	-----	-----	-----	-----		-----	-----	--
BBB	-----	-----	-----		-----	-----	-----	-----	
CCC	-----	-----	-----		-----		-----		---
DDD	-----	-----	-----	-----			-----	-----	
EEE	-----	-----	-----			-----	-----	-----	--
FFF	-----	-----	-----	-----	-----		-----	-----	
GGG	-----	-----	-----		-----		-----	-----	----
.									
.									
.									
NNN	-----	-----	-----	-----	-----	-----	-----	-----	--

FIG. 3

CUSTOMER RELATIONSHIP FILE

Customer	Customer Attribute 1	Customer Attribute 2	Customer Attribute 3	Customer Attribute 4	Customer Attribute 5	Customer Attribute 6	Customer Attribute 7	Customer Attribute ...	Customer Attribute n
AAA	X		X	X		X			X
BBB		X		X	X		X		
CCC	X		X						X
DDD					X	X	X		
EEE	X		X	X					X
FFF		X		X			X		
GGG	X	X	X	X	X	X	X		
.									
.									
.									
NNN	X		X		X	X			

FIG. 4

CONSUMER SAMPLE FILE

Consumer	Info. 1	Info. 2	Info. 3	Info. 4	Info. 5	Info. 6	Info. 7	...	Info. n
HHH	-----		-----	-----		-----			-----
III	-----			-----	-----		-----		
JJJ		-----	-----		-----	-----	-----		-----
KKK				-----	-----	-----	-----		
LLL		-----	-----		-----	-----			-----
MMM			-----		-----		-----		
NNN		-----	-----	-----	-----		-----		-----
.									
.									
.									
ZZZ		-----		-----		-----			-----

FIG. 5

Merged File

Consumer/Customer Reference Number	Customer Attribute 1	Customer Attribute 2	Customer Attribute 3	...	Customer Attribute n	Info. 1	Info. 2	...	Info. n
001	X		X		X	-----			-----
002		X				-----			
003	X		X		X		-----		-----
004									
005	X		X		X		-----		-----
006		X							
007	X	X	X				-----		-----
.									
.									
.									
nnn	X		X				-----		-----

FIG. 6

CUSTOMER/CONSUMER ATTRIBUTE FILE

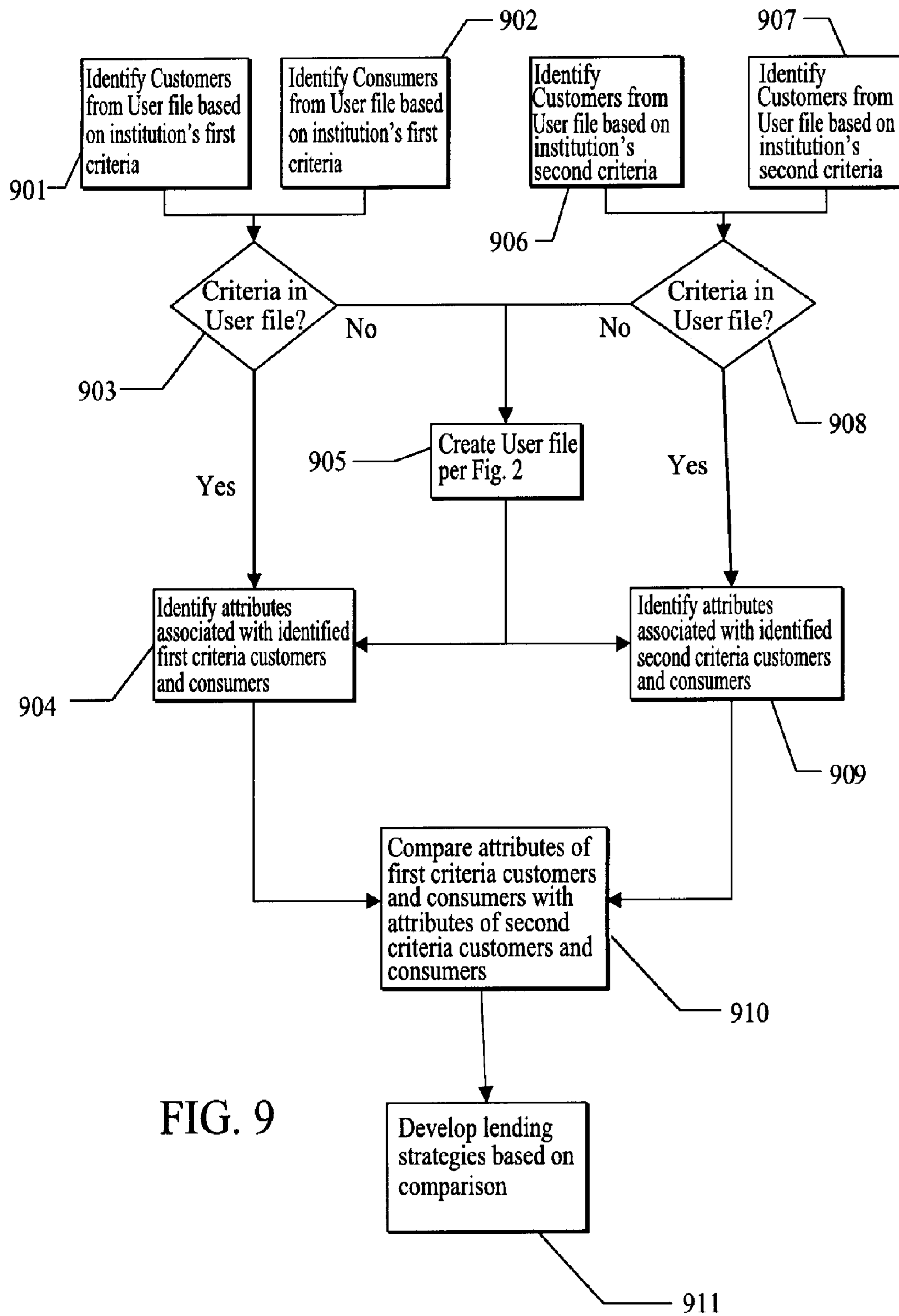
Consumer/ Customer Reference Number	Customer Attribute 1	Customer Attribute 2	Customer Attribute 3	Customer Attribute 4	Customer Attribute 5	...	Customer Attribute n	Consumer Attribute 1	Consumer Attribute 2	Consumer Attribute 3	Consumer Attribute 4	...	Consumer Attribute n
001	X		X	X			X	X	X	X	X		X
002		X		X	X								
003	X		X										
004					X			X		X	X		X
005	X		X	X			X						X
006		X		X									
007	X	X	X	X	X								
.													
.													
.													
mm	X		X		X								

FIG. 7

USER FILE

Customer/ Consumer Ref. No.	Customer Attribute 1	Customer Attribute 2	Customer Attribute 3	Customer Attribute ...	Customer Attribute n	Customer Attribute 1	Customer Attribute 2	Customer Attribute 3	Customer Attribute ...	Customer Attribute n	Value Added Attribute 1	Value Added Attribute 2	Value Added Attribute 3	Value Added Attribute ...	Value Added Attribute n
001	x		x		x	x	x	x		x	x		x		x
002		x									x	x			
003	x		x		x			x				x			x
004										x			x		x
005	x		x		x	x				x	x	x			x
006		x									x		x		x
007	x	x	x								x	x			
...															
nnn	x		x					x				x			x

FIG. 8



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METHOD AND APPARATUS FOR OBTAINING, ORGANIZING, AND ANALYZING MULTI-SOURCE DATA

BACKGROUND

The invention relates generally to credit lending strategies and decision processes and more particularly to an improved method and apparatus for obtaining, organizing, and analyzing internal customer credit data and external consumer credit data.

Typically, banks and other lending institutions have access to different independent sources of consumer credit information. The first source of information are Consumer Reporting Agencies (CRA's) that gather and sell consumer credit information to lending institutions so that these lending institutions can make rational decisions as to the credit worthiness of a particular prospective borrower. Most lending institutions report the credit activity of their customers to a CRA such that the CRA can accumulate and maintain a data base of the borrowing/credit history for individual borrowers. The most common type of CRA is the credit bureau. The Fair Credit Reporting Act (FCRA), enforced by the Federal Trade Commission, is designed to promote accuracy and ensure the privacy of the information used in consumer reports. The information reported by the CRA's, called a consumer report, contains data that is maintained and reported as it relates to a particular individual consumer. Lending institutions use the information in the consumer reports to make a risk assessment regarding the extension of credit and/or the lending of money to an individual consumer.

Other data that a lending institution has access to is the institution's own customer information. For example, a lending institution such as a bank will have a wide variety of customer data on all of its banking customers such as the customer's type and size of accounts, borrowing and credit history, banking behavior patterns and the like. This data, while detailed, is limited to individuals that have an existing relationship with the institution.

The lending institutions also have access to publicly available data such as reports issued by the government. This data tends to be very high level and is accurate only at a very gross level. Moreover, because this data is available to everyone, it does not offer a competitive advantage to any one lending institution.

Thus, a tool for analyzing the consumer credit market that is accurate, scalable, predictive and specifically tailored to the needs of the institution is desired.

SUMMARY

The tool of the invention is a data gathering and analytical process that uses internal customer data and external CRA data to build a consumer credit market data base and data structure. The data base and data structure can be used to analyze the consumer credit market, reduce analysis time, and enable actionable prediction to support risk/reward strategies for consumer lending. The tool of the invention combines the consumer data maintained by the CRA's with the lending institution's internal customer data to create a data base and structure representative of the consumer credit market that has strategic planning value as well as predictive capabilities. The internal customer data is classified according to identified Customer Attributes, the CRA data is also classified according to identified Consumer Attributes and the combined data is further classified according to additional Value Added Attributes. The resulting data structure is orga-

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nized at the individual level such that each individual has associated therewith values for each of the Customer Attributes, Consumer Attributes and Value Added Attributes. The data structure is searchable and the data is organized such that the institution in control of the data base can analyze the consumer lending market by any one or a combination of attributes. The resulting analysis can be used to set institutional strategies and/or to make predictive decisions on individual borrower credit requests.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram showing one embodiment of the operating environment for the present invention.

FIG. 2 is a flow chart showing one embodiment of the creation of the data structure of the present invention.

FIG. 3 shows the data structure for the Consumer Data file.

FIG. 4 shows the data structure for the Customer Relationship file.

FIG. 5 shows the data structure for the Consumer Sample file.

FIG. 6 shows the data structure for the Merged file.

FIG. 7 shows the data structure for the Customer/Consumer Attribute file.

FIG. 8 shows the data structure for the User file.

FIG. 9 is a flow chart showing an example analysis using the system and User file of the invention.

DETAILED DESCRIPTION

The present invention will now be described in terms of specific example embodiments. It is to be understood that the invention is not limited to the example embodiments disclosed. It should also be understood that not every feature of the methods and systems described is necessary to implement the invention as claimed in any one of the appended claims. Also, throughout this disclosure, where a process or method is shown or described, the steps of the method may be performed in any order or simultaneously, unless it is clear from the context that one step depends on another being performed first. Additionally, there can be significant time lag between steps.

As previously discussed, the invention relates to a data base and data structure and analytical tool that can be used to analyze the consumer credit market, reduce analysis time, and enable actionable prediction to support risk/reward strategies for consumer lending. It should be understood that terms like "bank," "financial institution," and "institution" are used herein in their broadest sense. Institutions, organizations, or even individuals that process loans or extend credit are widely varied in their organization and structure. Terms like bank and institution are intended to encompass all such possibilities, including but not limited to, finance companies, stock brokerages, credit unions, mortgage companies, manufacturers who grant loans to secure the purchase of goods, finance companies, etc. Additionally, disclosed embodiments may suggest or illustrate the use of agencies or contractors external to the financial institution to perform some of the calculations and data repository services. These illustrations are examples only, and an institution or business can implement the entire invention on their own computer systems or even a single work station if appropriate databases are present and can be accessed.

FIG. 1 is a block diagram illustrating one example operating environment for the present invention. Processing platform 2 can include one or more processors 4 and a certain amount of memory 6. Such a processing platform has asso-

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ciated with it data storage **10** such as optical disks, magnetic tape or other storage device for storing the data files shown generally at **8**, and computer programs or computer program code as shown at **11**. Processing platform **2** may reside at the financial institution or with a contractor. In the example of FIG. **1**, processing platform **2** and the affiliated storage and computer program code and data storage elements are used to aggregate and maintain historical data, transaction attribute information, credit bureau data, etc. This processing platform can also direct the updating and creation of User files or User file information as will hereinafter be described. In this example, processing platform **2** can communicate with credit bureau systems **7**. Credit Bureau systems **7** are known in the art and reside at and are managed by the credit bureaus. The structure of the credit bureau systems **7** do not form part of the present invention except as described with respect to the creation and use of the Consumer Sample file **22** and the Merged file **24** as will hereinafter be described. Communication can take place over network **20**, which may be via virtual private networking (VPN) or other encrypted connections over the Internet, or via private networking facilities. Decisioning systems **21** can access information from Processing Platform **2** as needed. These decisioning systems **21** may reside, for example, at financial institution branches, management offices, or technical and operation centers. Decisioning systems **21** may include customer service systems, loan application systems, collection systems and tracking systems.

As previously discussed, it should be noted that computer program code in the form of various computer program instructions can be used to implement at least portions of the processes involved in carrying out embodiments of the invention. Such computer program code can be supplied via a computer program product containing all or a portion of the computer program instructions stored on a media. The media may be fixed, or removable. Such a media is conceptually illustrated at **11** of FIG. **1** as a fixed storage media, but it could also be a removable optical or magnetic disc or tape. The computer program instructions can reside on any medium that can contain, store, communicate, propagate, or transport computer program code for execution by any type of computing platform, instruction execution system, or collection of such systems interconnected via a buss or network. Such a computer readable medium may be, for example, but not limited to, an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system, device, or propagation medium. Other examples of the computer-readable medium would include an electrical connection having one or more wires, a portable computer diskette or portable fixed disk, an optical fiber, a compact disc read-only memory (CD-ROM), and a digital versatile disc read-only memory (DVD-ROM). Note that the computer-usable or computer-readable medium could even be paper or another suitable medium upon which the program is printed, as the program can be electronically captured, via, for instance, optical scanning of the paper or other medium, then compiled, interpreted, or otherwise processed in a suitable manner, if necessary, and then stored in a computer memory. Computer program instructions which implement all or a portion of the invention may also be embodied in a stream of information being retrieved over a network such as the Internet. All of the computer program code involved in carrying out the processes described herein can reside with one party, or on a single system. This would be the case for example if a financial institution wished to have complete control of the process.

The process for developing the data base, data structure and analytical tool of the invention will be described with reference to FIGS. **1** and **2**. The institution has an existing data

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store shown as data base **10** that includes a Customer Data file **12**, maintained at the individual customer level. As best shown in FIG. **3** the Customer Data file **12** includes personal customer information **301** such as name, customer number, address, social security number and the like; account information **302** such as types and sizes of accounts, loan and debt activity and the like; and behavior information **303** such as on-line versus face-to-face interaction, branch usage and the like. The information described and shown in FIG. **3** is by way of example only and substantial other information may be maintained by the institution for its customers. This information is organized at the customer level such that for each of the institution's customers **304**, the customer's personal, account and behavior activity is associated with that customer. It will be appreciated that the Customer Data file **12** may include information on millions of customers for a large institution. It is also contemplated that customer data file **12** may be maintained by a third party for the benefit of the institution.

From this customer information Customer Relationship Attributes are developed that define the relationship between the customer and the institution (block **201**). A list of example Customer Relationship Attributes is set forth at the end of this Detailed Description. While a preferred set of Customer Relationship Attributes is exemplified herein, it is to be understood that a fewer or greater number of attributes may be used in the use of the system of the invention. The attributes actually used will depend on those attributes that are identified by the institution as being important to defining the relationship with the customer. It will further be understood that these attributes can change over time as the relationship between the institution and its customers changes over time.

Once these attributes have been identified a Customer Relationship file **14** is created (block **202**). The Customer Relationship **14** file would typically be stored in a data store such as data base **10**. It is to be understood that while the Customer Relationship file **14** is shown as being stored in data base **10** that also stores the institution's Customer Data file **12**, separate data stores may be used. The Customer Relationship file **14** has a data structure, as best shown in FIG. **4**, that is at the customer level such that for each institution customer **401**, the customer is evaluated for the Customer Relationship Attributes **402** and a "value" is set for that attribute. The "value" could comprise a numerical value such as a ranking or dollar amount or it could comprise information such as zip code or it could be a binary flag such as Yes/No. Thus, for each customer of the institution **401** in the Customer Relationship file **14**, the attributes **402** associated with that customer may be identified and captured. It is to be understood that not every customer of an institution need be included in the Customer Relationship file **14**.

The institution also gathers information from the relevant CRA's. Specifically, the institution defines criteria and provides the criteria to one or more CRA's to define the consumers for which the institution desires consumer report data (block **203**). The terms "customer" and "consumer" are used herein to distinguish between individuals that have a known relationship with the institution (customers) and individuals that may or may not have a relationship with the institution that are identified by a CRA as having a consumer credit relationship with another institution (consumers). The criteria may identify consumers based on specific criteria such as all consumers that have booked a particular institution product (e.g. credit card) during a desired time frame. Alternatively, the criteria may define a random sample of all consumers known to the CRA. A typical CRA data base **16** may have 280 million records on file. In order to manage the data, a sample of the total number of records may be used where, for

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example, the CRA samples every tenth record (block 204). A Consumer Sample file 22, shown in FIG. 5, is created by the CRA that is again at the individual consumer level where for each consumer 501 in the Consumer Sample file 22 all of the information 502 maintained by the CRA is associated with that consumer (block 205).

The Customer Relationship file 14 and the Consumer Sample file 22 are merged to create Merged file 24 (block 206). To merge the files a commercially available merging program using match logic such as PermID developed by TRANSUNION may be used. The resulting Merged file 24, shown in FIG. 6, will again be at the individual level where all of the attributes 402 captured in the Customer Relationship file 14 and all of the information 502 in the Consumer Sample file 22 are associated with an individual 601. In the merged file it will be appreciated that the individual may be a customer of the institution, a consumer or both (i.e. have an existing relationship with the institution and a consumer credit relationship with another institution). The Merged file 24 includes information maintained by the CRA for its consumers and all Consumer Attributes maintained and identified by the institution and captured in the Consumer Relationship file 14. Typically the Merged file 24 will be created by the CRA at the direction of the institution based on the criteria identified by the institution for selecting the consumers for the Consumer Sample file 22. The CRA, however, may send its consumer file to the institution where the institution will create the merged file or a third party may receive the Consumer Sample file from the CRA and the Consumer Relationship file from the Institution and create the merged file for the benefit of the institution.

In order to maintain the confidentiality of individual credit status the CRA may delete all information related to the identity of a particular consumer in the Merged file 24. Thus the Merged file 24 will identify the consumers/customers by reference number or other non-individual specific identifier. The information associated with that consumer/customer reference number will be specific to the individual but all identifying personal information such as name, social security number, address and the like will be removed from the Merged file 24.

Consumer Attributes are identified that define the relationship between the consumer and any institution with which the consumer has a relationship (block 207). A list of example Consumer Attributes is set forth at the end of this Detailed Description. While a preferred set of Consumer Attributes is exemplified herein, it is to be understood that a fewer or greater number of attributes may be used in the system of the invention. The Consumer Attributes actually used will depend on those relationships that are identified by the institution as being most important to defining the relationship between the consumer and the consumer credit market. It will further be understood that these attributes can change over time as the relationship between consumers and the consumer credit market changes over time.

Once these Consumer Attributes have been identified a Customer/Consumer Attribute file 28 is created (block 208). The Customer/Consumer Attribute file 28 would typically be stored in a data store such as data base 10. It is to be understood that while the Customer/Consumer Attribute file is shown as being stored in data base 10 that also stores the institutions other files, separate data stores may be used. Referring to FIG. 7, the Customer/Consumer Attribute file 28 has a data structure that is at the customer/consumer level such that for each individual customer and/or consumer 701, the individual is evaluated for each of the Consumer Attributes. The Customer/Consumer Attribute file 28 cap-

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tures the data for each Customer Attribute 402 and for each Consumer Attribute 702 where a "value" is set for each attribute. The "value" may comprise a numerical value such as a ranking or dollar amount or it may comprise a piece of information such as zip code or it may be a binary flag such as Yes/No or the like.

Thus, for each customer/consumer in the Customer/Consumer Attribute file 28, the attributes associated with that customer and/or consumer are identified and captured. It is to be understood that some individuals will be consumers, some individuals will be customers and some individuals will be both consumers and customers. Consumers will only have Consumer Attributes 702 identified, customers will have only Customer Attributes 402 identified while consumer/customers have both Consumer Attributes and Customer Attributes identified. This file is at the individual level but does not include information that would allow the individuals to be identified as previously explained.

Value Added Attributes are defined (block 209) and a User File 32 is created (block 210) that includes the Value Added Attributes 802 in addition to the information contained in the Customer/Consumer Attribute file. The Value Added Attributes 802 consist primarily of comparative attributes and market total attributes. A list of example Value Added Attributes is set forth at the end of this Detailed Description. The comparative attributes are attributes that compare customer data and consumer data and market wide data. Market total attributes are attributes of the total consumer credit market. While a preferred set of Value Added Attributes 802 are exemplified herein, it is to be understood that a fewer or greater number of attributes may be used in the use of the system of the invention. The attributes actually used will depend on those relationships that are identified by the institution as being important to defining the relationship between the customer and consumer and the total consumer credit market. It will further be understood that these attributes can change over time as the relationship between customers and consumers and the consumer credit market changes over time.

The User file 32 would typically be stored in a data store such as data base 10. It is to be understood that while the User file 32 is shown as being stored in data base 10, a separate data store may be used. The User file 32 has a data structure, best shown in FIG. 8, maintained at the customer/consumer level such that for each individual customer and/or consumer 801, the individual is evaluated for each of the Value Added Attributes 802 and a "value" is set for that attribute. The "value" could comprise a numerical value such as a ranking or dollar amount or it could comprise a piece of information such as zip code or it could be a binary flag such as Yes/No.

Thus for each customer/consumer 801 in the User file 32, the Customer Attributes 402, Consumer Attributes 702 and Value Added Attributes 802 associated with that customer and/or consumer would be identified and captured. It is to be understood that some individuals will be consumers, some individuals will be customers and some individuals will be both consumers and customers. Consumers will have Consumer Attributes and Value Added Attributes identified, customers will have Customer Attributes and Value Added Attributes identified while consumer/customers will have all attributes identified. As previously explained this file is at the individual level but does not include information that would allow the individuals to be identified. It is to be understood that the status of an individual as a customer or consumer may change over time.

When creating the User file 32, in addition to identifying the Value Added Attributes, the data is scaled up from the

sample provided by the CRA to a national level. The data is also scaled down in order to account for duplicative data. Duplicative data may result, for example, where one individual holds a joint account with another individual. Because the data is maintained and organized at the individual level this data would show up in the attributes associated with both joint account holders, in effect it would be captured twice. In order to scale up the data from the sample size to the actual market size, the sample could simply be multiplied by the sample rate, SR, (e.g. multiply the sample by 10 if one out of ten records is sampled) to estimate the size of the market; however, this will not account for duplicative data as described above.

The weighting methodology of the invention adjusts each line in the sample to combine the scaling up and scaling down in a single factor. To scale the data down a method for taking into account joint accounts has been developed. While most joint accounts are held by two people some accounts have more than two people. Therefore, the average number of holders per joint account is estimated at 2.1. The weighting of the data sample will be explained by way of example. Assume that an individual has three accounts and one of the accounts is a joint account and the other two accounts are individual accounts. To scale the data, the number of accounts held by the individual are totaled. In this example the total number of accounts (T) is 3. An ECOA (Equal Credit Opportunity Act) code that is unique to an account is used to identify joint account holders. Thus the system can identify which of the accounts are joint accounts. For each account a QT factor (number of holders per account) is assigned. For an independent account the QT factor is 1 and for the joint account the QT factor is 2.1. In the given example two of the accounts are individual and one of the accounts is joint. The QT factors for this individual are totaled ($1+1+2.1=4.1$) such that the customer's QT value is 4.1. The QT value (4.1) is scaled down by dividing it by the total number of accounts, T, (in this example $T=3$), such that the scale down factor is $4.1/3$. To scale up this individual's accounts to determine the portion of the total market this account represents, the individual's total number of accounts ($T=3$) is multiplied by 10 (the sample rate, SR) and then divided by the scale down factor ($4.1/3$) or:

$$(T \times SR) / (QT/T) = (3 \times 10) / (4.1/3) = 21.95.$$

Thus, this single individual represents 21.95 accounts of the total market. The individual values of this individual's attributes can be multiplied by 21.95 to determine the partial market represented by this individual. The total market can be determined by adding the partial market values of all of the individuals in the sample. Account balances are treated the same way.

Once the User file 32 is created it can be used for in depth market analysis and/or for its predictive value. For market analysis the data can be analyzed to show specific consumer behavior or institution versus market performance or consumer versus institution versus market behavior. In one example market analysis, the institution may compare the activity of individuals, both customers and consumers, for a particular product offering in order to identify the attributes of individuals that were booked with the institution compared to the attributes of individuals that were not booked with the institution.

This analysis will be further explained by way of example with reference to FIG. 9. All customers that applied to the institution for a particular product offering are identified from the Customer Attributes in User file 32 based on specific criteria (block 901). Assume for purposes of this example that the product offering under review is auto loans. The criteria

could further limit the customers by targeting a specific time frame such as first quarter year 1. All consumers that opened an auto loan during the same time period with another institution are also identified from the Consumer Attributes in User file 32 (block 902). If this information is identifiable from the attributes in an existing User file (block 903), both sets of individuals can be identified and all attributes related to the two sets can be identified (block 904). If for some reason the individuals cannot be identified from the existing User file (for example, the User file information was not gathered for the desired time frame) an analysis specific User file can be created following the procedure outlined with reference to FIG. 2 (block 905). In this instance the Customer Relationship file 14 is created from the Customer data file 12 for only those individuals that meet the analysis criteria (e.g. customers that applied for an auto loan during the target time period). Likewise the Consumer Sample File 22 is created from a sample of those consumers that opened an auto loan with another institution during the target time period. These files are merged and the User file is created as previously described except that this User file captures only those individuals that meet the desired criteria. This User file allows access to all attributes for the targeted individuals such that attributes of auto loan customers can be compared to the attributes of auto loan consumers generally. The two sets of data allow the institution to view any variation of the auto loan market including individuals that:

Applied to and booked with the institution;

Applied to and were approved by the institution but booked elsewhere;

Applied to but were declined by the institution and booked elsewhere;

Applied elsewhere and were booked elsewhere; and

Applied to the institution but did not book anywhere.

Prior to the implementation of the analytical tool of the invention, the institution would only have a complete view of individuals that applied to and booked with the institution and a partial view of individuals that applied to the institution but did not book with the institution.

A further analytical approach would be to repeat the foregoing process for the same product at a later date. For example, customers that applied to the institution for the same product offering are identified (block 906). The criteria are modified from the initial analysis in that the specific time frame is redefined as first quarter year 3. All consumers that opened an auto loan during the same time period with another institution are also identified from the Consumer Attributes in User file 32 (block 907). If this information is identifiable from the attributes in an existing User file (block 908), both sets of individuals can be identified and all attributes related to the two sets can be identified (block 909). If for some reason the individuals cannot be identified from the existing User file an analysis specific User file can be created following the procedure outlined with reference to FIG. 2 (block 905). The second User file in addition to capturing loan applications and booking information may also include loan performance criteria including delinquencies, charge offs, repossessions and the like reported by the CRA. By comparing the two User files (block 910) the institution can identify which loan applicants were credit worthy and which were not and the attributes of each group of loan applicants. The institution can compare actual loan performance with predicted credit worthiness to determine if the institution's loan scoring criteria was actually predictive of performance. The institution can also plan future strategies to focus on the more credit worthy applicants (block 911). Any other attribute of the groups can also be compared and contrasted such that performance over time can

be tracked. Other market analysis can also be performed using the data base as shown and described.

In one such strategy the User data base can be used for its predictive value. To make the decision for loaning money or extending credit to a potential borrower is typically made based on a credit score that represents the credit trustworthiness of the applicant. The credit score is compared to a cutoff score that is developed based on the pass rates and bad rates for the particular type of loan the applicant seeks and the decision to make the loan is based on this comparison. The CRA may compute and provide the applicant's score to the lending institution or the CRA may provide the raw data to the lending institution and the lending institution will compute its own score. The lending institution may take into account information the lending institution has determined has a bearing on its decision to lend money from the foregoing analysis. For example, the lending institution may be more likely to make a loan to a customer that holds a certain type of account and/or dollar amount with the institution, or that has other attributes that are identified as being indicators of the credit worthiness of an individual borrower.

Customer Relationship Attributes

ID

SSN

First name

Middle name

Last name

Suffix

Address line 1

Address line 2

City

State

Zip first 5 digits code

Zip 4

On us flag

Type of tax identification code

INST ("Institute") first mortgage number of open accounts

INST first mortgage sum of balances for open accounts

INST first mortgage sum of originations for open accounts

Months on book for oldest open first mortgage account

Months on book for youngest open first mortgage account

INST home equity loan number of open accounts

INST home equity loan sum of balances for open accounts

INST home equity loan sum of originations for open accounts

Months on book for oldest open home equity loan account

Months on book for youngest open home equity loan account

INST auto number of open accounts

INST auto sum of balances for open accounts

INST sum of originations for open accounts

Months on book for oldest open auto account

Months on book for youngest open auto account

INST other installment number of open accounts

INST other installment sum of balances for open accounts

INST other installment sum of originations for open accounts

Months on book for oldest open other installment account

Months on book for youngest open other installment account

INST heloc number of open accounts

INST heloc sum of balances for open accounts

INST heloc sum of originations for open accounts

Months on book for oldest open heloc account

Months on book for youngest open heloc account

INST bankcard number of open accounts

INST bankcard sum of balances for open accounts

INST bankcard sum of originations for open accounts

Months on book for oldest open bankcard account

Months on book for youngest open bankcard account

INST other loc number of open accounts

INST other loc sum of balances for open accounts

INST other loc sum of originations for open accounts

Months on book for oldest open other loc account

Months on book for youngest open other loc account

INST any deposit number of open accounts

INST any deposit sum of balances for open accounts

Months on book for oldest open deposit account

Months on book for youngest open deposit account

INST any investment number of open accounts

INST any investment sum of balances for open accounts

Months on book for oldest open investment account

Months on book for youngest open investment account

Bureau refresh score

INST dfs auto number of open accounts

INST dfs auto sum of balances for open accounts

INST dfs speciality number of open accounts

INST dfs speciality sum of balances for open accounts

INST heloc number of increase accounts in last 3 month

INST heloc sum of balances for increase accounts in last 3 months

INST heloc sum of line amount for increase accounts in last 3 months

INST heloc sum of incremental line amount for increase accounts in last 3 months

INST secured bankcard number of open accounts

INST secured bankcard sum of balances for open accounts

INST secured bankcard sum of line amount for open accounts

INST checking number of open accounts

INST checking sum of balances for open accounts

INST cd number of open accounts

INST cd sum of balances for open accounts

INST ira number of open accounts

INST ira sum of balances for open accounts

INST money market number of open accounts

INST money market sum of balances for open accounts

INST regular savings number of open accounts

INST regular savings sum of balances for open accounts

INST annuity number of open accounts

INST annuity sum of balances for open accounts

INST brokerage number of open accounts

INST brokerage sum of balances for open accounts

INST money manager number of open accounts

INST money manager sum of balances for open accounts

INST number of atm/check cards

INST first mortgage nibt amount for open accounts

INST home equity loan nibt amount for open accounts

INST auto nibt amount for open accounts

INST other installment nibt amount for open accounts

INST heloc nibt amount for open accounts

INST bankcard nibt amount for open accounts

INST other loc nibt amount for open accounts

INST any deposit nibt amount for open accounts

INST any investment nibt amount for open accounts

Insufficient funds fees amount

Overdraft charge amount

Fully allocated net income amount

Net interest income amount

Non interest income amount

Non interest expense amount

of months party has had a bofa relationship

Name form code

Service level indicator code

11

Sales and service sales channel code
 Plus code
 Number of premier sales channel accounts
 Number of private bank sales channel accounts
 Number of small business sales channel accounts
 Associate indicator
 Customer age
 Gender
 Seg_cd when seg_typ_cd=pprf
 Seg_cd when seg_typ_cd=nedatt
 Seg_cd when seg_typ_cd=ciggrp
 Seg_cd when seg_typ_cd=potndep
 Seg_cd when seg_typ_cd=potnin
 Seg_cd when seg_typ_cd=potninv
 Seg_cd when seg_typ_cd=potntotbl
 Seg_cd when seg_typ_cd=valuquad
 Realized profit amount
 Realized profit deposit amount
 Realized profit investment amount
 Realized profit loan amount
 Unrealized total balance amount
 Unrealized deposit amount
 Unrealized investment amount
 Unrealized loan amount
 Unrealized profit amount
 Unrealized profit deposit amount
 Unrealized profit investment amount
 Unrealized profit loan amount
 Ethnicity code
 Ethnicity code
 Market segment code
 Party collection child indicator
 Party collection demographic cluster code
 Party collection demographic cluster group code
 Home purchase amount
 Home market value amount
 Available home equity amount
 Loan to value percent
 Home owner indicator
 Home owner rent code
 Number of service calls to the vru system
 Number of times logged in to online banking/billpay
 Premier migration quarters on book
 Loan purpose
 Loan channel
 Application date
 Amount requested
 Score
 Custom score
 Actual ltv
 Actual dti
 Final application status
 Interest rate
 Days to fund
 Line increase flag
 Allowable ltv
 Allowable dti
 INST lien position
 Total lien amount
 Prequel flag
 Application date
 Amount requested
 Score
 Custom score
 Actual ltv
 Actual dti
 Final application status

12

Interest rate
 Days to fund
 Number of applications
 Escrow deposit at closing
 5 Property zipcode
 On us refinance transaction indicator
 Property sales price
 Total ltv
 Incomplete application decline
 10 Asset related decline
 Bankruptcy related decline
 Credit report delinquency decline
 Employment related decline
 Income related decline
 15 Insufficient credit reference decline
 Other decline
 Derogatory public record decline
 Property related decline
 Score decline
 20 Credit card channel
 Mtg product
 Home equity product
 CCA cobrand count
 25 CCA cobrand balance
 CCA aggregate count
 CCA aggregate balance
 Total teller deposit count
 Total teller withdrawal count
 30 Total ATM withdrawal count
 Total ATM deposit count
 Max teller deposit count
 Max teller withdrawal count
 Max vru inquiry count
 35 Max online banking logon count
 Max ATM withdrawal count
 Max ATM deposit count
 Heloc channel
 Fleet match
 40 Heloc increase flag
 Heloc increase months on book
 Heloc increase line
 Consumer Attributes
 TU zip code
 45 TU city
 TU state
 Job specific sequence # created by TU (7Z070100000001-
 7Z073999999999)
 INST first lien number of open accounts
 50 INST first lien number of open accounts opened w/in the
 last 3 m
 INST first lien sum of bal for open accounts
 INST first lien sum of bal for open accounts opened w/in 3
 m
 55 INST first lien number of accounts currently 90+ verified
 w/in the last 6 m
 INST first lien sum of bal currently 90+ verified w/in the
 last 6 m
 INST first lien sum of amount financed for open accounts
 60 INST first lien sum of amount financed for open accounts
 w/in 3 m
 INST lien age of oldest trade
 Non-INST non-finance first lien number of open accounts
 Non-INST non-finance first lien number of open accounts
 65 opened w/in the last 3 m
 Non-INST non-finance first lien sum of bal for open
 accounts

13

Non-INST non-finance first lien sum of bal for open accounts w/in 3 m

Non-INST non-finance first lien number of accounts currently 90+ verified w/in 6 m

Non-INST non-finance first lien sum of bal currently 90+ verified w/in 6 m

Non-INST non-finance first lien sum of amount financed for open accounts

Non-INST non-finance first lien sum of amount financed for open accounts open w/in 3 m

Non-INST non-finance first lien age of oldest trade

Non-INST finance first lien number of open accounts

Non-INST finance first lien number of open accounts opened w/in the last 3 m

Non-INST finance first lien sum of bal for open accounts

Non-INST finance first lien sum of bal for open accounts w/in 3 m

Non-INST finance first lien number of accounts currently 90+ verified w/in 6 m

Non-INST finance first lien sum of bal currently 90+ verified w/in 6 m

Non-INST finance first lien sum of amount financed for open accounts

Non-INST finance first lien sum of amount financed for open accounts open w/in 3 m

Non-INST finance first lien age of oldest trade

INST home equity loan number of open accounts

INST home equity loan number of open accounts opened w/in the last 3 m

INST home equity loan sum of bal for open

INST home equity loan sum of bal for open accounts opened w/in 3 m

INST home equity loan number of accounts currently 90+ verified w/in the last 6 m

INST home equity loan sum of bal currently 90+ verified w/in the last 6 m

INST home equity loan sum of amount financed for open accounts

INST home equity loan sum of amount financed for open accounts open with 3 m

Non-INST non-finance home equity loan number of open accounts

Non-INST non-finance home equity loan number of open accounts opened w/in the last 3 m

Non-INST non-finance home equity loan sum of bal for open accounts

Non-INST non-finance home equity loan sum of bal for open accounts w/in 3 m

Non-INST non-finance home equity loan number of accounts currently 90+ verified w/in 6 m

Non-INST non-finance home equity loan sum of bal currently 90+ verified w/in 6 m

Non-INST non-finance home equity loan sum of amount financed for open accounts

Non-INST non-finance home equity loan sum of amount financed for open accounts open w/in 3 m

Non-INST finance home equity loan number of open accounts

Non-INST finance home equity loan number of open accounts opened w/in the last 3 m

Non-INST finance home equity loan sum of bal for open accounts

Non-INST finance home equity loan sum of bal for open accounts w/in 3 m

Non-INST finance home equity loan number of accounts currently 90+ verified w/in 6 m

14

Non-INST finance home equity loan sum of bal currently 90+ verified w/in 6 m

Non-INST finance home equity loan sum of amount financed for open accounts

Non-INST finance home equity loan sum of amount financed for open accounts open with 3 m

INST auto number of open accounts

INST auto number of open accounts opened w/in the last 3 m

INST auto sum of bal for open accounts

INST auto sum of bal for open accounts opened w/in 3 m

INST auto number of accounts currently 90+ verified w/in the last 6 m

INST auto sum of bal currently 90+ verified w/in the last 6 m

15 m

INST auto sum of amount financed for open accounts

INST auto sum of amount financed for open accounts open with 3 m

Non-INST non-finance auto number of open accounts

Non-INST non-finance auto number of open accounts opened w/in the last 3 m

Non-INST non-finance auto sum of bal for open accounts

Non-INST non-finance auto sum of bal for open accounts w/in 3 m

Non-INST non-finance auto number of

Non-INST non-finance auto sum of bal currently 90+ verified w/in 6 m

Non-INST non-finance auto sum of amount financed for open accounts

Non-INST non-finance auto sum of amount financed for open accounts open with 3 m

Non-INST finance auto number of open accounts

Non-INST finance auto number of open accounts opened w/in the last 3 m

35 Non-INST finance auto sum of

Non-INST finance auto sum of bal for open accounts w/in 3 m

Non-INST finance auto number of accounts currently 90+ verified w/in 6 m

Non-INST finance auto sum of bal currently 90+ verified w/in 6 m

Non-INST finance auto sum of amount financed for open accounts

Non-INST finance auto sum of amount financed for open accounts open with 3

INST other installment number of open accounts

INST other installment number of open accounts opened w/in the last 3 m

INST other installment sum of bal for open accounts

INST other installment sum of bal for open accounts opened w/in 3 m

INST other installment number of accounts currently 90+ verified w/in the last 6 m

55 INST other installment sum of bal currently 90+ verified w/in the last 6 m

INST other installment sum of amount financed for open accounts

INST other installment sum of amount financed for open accounts open with 3 m

60 Non-INST non-finance other installment number of open accounts

Non-INST non-finance other installment of open accounts opened w/in the last 3 m

65 Non-INST non-finance other installment sum of bal for open accounts

Non-INST non-finance other installment sum of bal for open accounts w/in 3 m

15

Non-INST non-finance other installment number of accounts currently 90+ verified w/in 6 m

Non-INST non-finance other installment sum of bal currently 90+ verified w/in 6 m

Non-INST non-finance other installment sum of amount financed for open accounts

Non-INST non-finance other installment sum of amount financed for open accounts open w/in 3 m

Non-INST finance other installment number of open accounts

Non-INST finance other installment number of open accounts opened w/in the last 3 m

Non-INST finance other installment sum of bal for open accounts

Non-INST finance other installment sum of bal for open accounts w/in 3 m

Non-INST finance other installment number of accounts currently 90+ verified w/in 6 month

Non-INST finance other installment sum of bal currently 90+ verified w/in 6 m

Non-INST finance other installment sum of amount financed for open accounts

Non-INST finance other installment sum of amount financed for open accounts open with 3 m

INST heloc number of open accounts

INST heloc number of open accounts in last 3 month

INST heloc sum of bal for open accounts

INST heloc sum of bal for open accounts opened w/in 3 m

INST heloc number of accounts currently 90+ verified w/in the last 6 m

INST heloc sum of bal currently 90+ verified w/in the last 6 m

INST heloc sum of credit limit for open accounts

INST heloc sum of credit limit for open accounts open w/in 3 m

INST heloc number of open accounts with a zero bal

INST heloc number of open accounts opened w/in the last 3 m

Non-INST non-finance heloc number of open accounts

Non-INST non-finance heloc number of open accounts opened w/in the last 3 m

Non-INST non-finance heloc sum of bal for open accounts

Non-INST non-finance heloc sum of bal for open accounts w/in 3 m

Non-INST non-finance heloc number of accounts currently 90+ verified w/in 6 m

Non-INST non-finance heloc sum of bal currently 90+ verified w/in 6 m

Non-INST non-finance heloc sum of credit limit for open accounts

Non-INST non-finance heloc sum of credit limit for open accounts open w/in 3 m

Non-INST non-finance heloc number of open accounts with a zero bal

Non-INST non-finance heloc number of open accounts opened w/in the last 3 m with a zero bal

Non-INST finance heloc number of open accounts

Non-INST finance heloc number of open accounts opened w/in the last 3 m

Non-INST finance heloc sum of bal for open accounts

Non-INST finance heloc sum of bal for open accounts w/in 3 m

Non-INST finance heloc number of accounts currently 90+ verified w/in 6 m

Non-INST finance heloc sum of bal currently 90+ verified w/in 6 m

16

Non-INST finance heloc sum of credit limit for open accounts

Non-INST finance heloc sum of credit limit for open accounts open w/in 3 m

Non-INST finance heloc number of open accounts with a zero bal

Non-INST finance heloc number of open accounts opened w/in the last 3 m with a zero bal

INST bankcard number of open accounts

INST bankcard number of open accounts opened w/in the last 3 m

INST bankcard sum of bal for open accounts

INST bankcard sum of bal for open accounts opened w/in 3 m

INST bankcard number of accounts currently 90+ verified w/in the last 6 m

INST bankcard sum of bal currently 90+ verified w/in the last 6 m

INST bankcard sum of credit limit for open accounts

INST bankcard sum of credit limit for open accounts open with 3 m

INST bankcard number of open accounts with a zero bal

INST bankcard number of open accounts opened w/in the last 3 m with a zero bal

INST bankcard age of oldest trade

INST bankcard age of youngest trade

INST bankcard highest open bal

INST bankcard credit limit for highest open bal

Non-INST non-finance bankcard number of open accounts

Non-INST non-finance bankcard number of open accounts opened w/in the last 3 m

Non-INST non-finance bankcard sum of bal for open accounts

Non-INST non-finance bankcard sum of bal for open accounts w/in 3 m

Non-INST non-finance bankcard number of accounts currently 90+ verified w/in 6 m

Non-INST non-finance bankcard sum of

Non-INST non-finance bankcard sum of credit limit for open accounts

Non-INST non-finance bankcard sum of credit limit for open accounts open w/in 3 m

Non-INST non-finance bankcard number of open accounts with a zero bal

Non-INST non-finance bankcard number of open accounts opened w/in the last 3 m with a zero bal

Non-INST non-finance bankcard age of oldest trade

Non-INST non-finance bankcard age of youngest trade

Non-INST non-finance bankcard highest bal

Non-INST non-finance bankcard credit limit for highest open bal

Non-INST finance bankcard number of open accounts

Non-INST finance bankcard number of open accounts opened w/in the last 3 m

Non-INST finance bankcard sum of bal for open accounts

Non-INST finance bankcard sum of bal for open accounts w/in 3 m

Non-INST finance bankcard number of accounts currently 90+ verified w/in 6 m

Non-INST finance bankcard sum of bal currently 90+ verified w/in 6 m

Non-INST finance bankcard sum of credit limit for open accounts

Non-INST finance bankcard sum of credit limit for open accounts open w/in 3 m

Non-INST finance bankcard number of open accounts with a zero bal

17

Non-INST finance bankcard number of open accounts
 opened w/in the last 3 m with a zero bal
 Non-INST finance bankcard age of oldest trade
 Non-INST finance bankcard age of youngest trade
 Non-INST finance bankcard highest open bal
 Non-INST finance bankcard credit limit for highest open
 bal
 INST other loc number of open accounts
 INST other loc number of open accounts opened w/in the
 last 3 m
 INST other loc sum of bal for open accounts
 INST other loc sum of bal for open accounts opened w/in 3
 m
 INST other loc number of accounts currently 90+ verified
 w/in the last 6 m
 INST other loc sum of bal currently 90+ verified w/in the
 last 6 m
 INST other loc sum of credit limit for open accounts
 INST other loc sum of credit limit for open accounts open
 with 3 m
 INST other loc number of open accounts with a zero bal
 INST other loc number of open accounts opened w/in the
 last 3 m with a zero bal
 Non-INST non-finance other loc number of open accounts
 Non-INST non-finance other loc number of open accounts
 opened w/in the last 3 m
 Non-INST non-finance other loc sum of bal for open
 accounts
 Non-INST non-finance other loc sum of bal for open
 accounts w/in 3 m
 Non-INST non-finance other loc number of accounts cur-
 rently 90+ verified w/in 6 m
 Non-INST non-finance other loc sum of bal currently 90+
 verified w/in 6 m
 Non-INST non-finance other loc sum of credit limit for
 open accounts
 Non-INST non-finance other loc sum of credit limit for
 open accounts open with 3 m
 Non-INST non-finance other loc number of open accounts
 with a zero bal
 Non-INST non-finance other loc number of open accounts
 opened w/in the last 3 m with a zero bal
 Non-INST finance other loc number of open accounts
 Non-INST finance other loc number of open accounts
 opened w/in the last 3 m
 Non-INST finance other loc sum of bal for open accounts
 Non-INST finance other loc sum of bal for open accounts
 w/in 3 m
 Non-INST finance other loc number of accounts currently
 90+ verified w/in 6 m
 Non-INST finance other loc sum of bal currently 90+ veri-
 fied w/in 6 m
 Non-INST finance other loc sum of credit limit for open
 accounts
 Non-INST finance other loc sum of credit limit for open
 accounts open with 3 m
 Non-INST finance other loc number of open accounts with
 a zero bal
 Non-INST finance other loc number of open accounts
 opened w/in the last 3 m with a zero bal
 Thin file flag
 Bankruptcy within 24 m flag
 Consumer credit counseling w/in 24 m flag
 Number of trades with a repossession w/in 24 m
 Number of trades with a chargeoff w/in 24 m
 Number of trades with a foreclosure w/in 24 m
 Sum of collection bal

18

Number of months on the file
 Number of non-INST inquiries with kob of B w/in 3 m
 Number of non-INST inquiries with kob of F or Q w/in 3 m
 Number of non-INST inquiries with kob of A w/in 3 m
 Number of non-INST inquiries with kob other than A, B, F,
 or Q w/in 3 m
 Number of INST inquiries w/in 3 m
 # inquiries 0-5 months excluding last 7 days
 # revolving trade lines with bal
 Average months in file
 Net fraction installment burden
 Net fraction revolving burden
 % trade lines never delinquent
 Months since most recent delinquency
 % installment trade lines
 Maximum delinquency ever
 # bank/nat'l trades with bal 75% of high credit
 # retail trade lines with bal
 # trade lines 60+ ever and derog public records
 # trade lines 90+ ever and derog public records
 # revolving/open TL with bal opened in last 12 m
 Max delq/public records in last 12 m
 # satisfactory ratings
 Worst credit bureau rating
 % trade line with bal
 Worst rating installment trade lines
 Worst rating revolving/open trade lines
 Months since most recent inquiry
 # installment trade line 30+ ever
 Months since most recent 60+ delinquency
 Months since most recent derogatory rating
 Months since oldest revolving/open trade line opened
 # trade lines now current
 # non-il trade lines with bal 50% of high credit
 # revolving/open trade lines with bal
 # trade lines opened in last 12 m
 Average revolving/open bal
 Months since oldest date opened
 Total amount now past due
 # inquiries 0-5 months
 # major derogatory ratings
 Months since most recent finance trade line opened
 Worst credit bureau rating details
 Worst rating trade lines reported in last 24 m
 INST first lien current bal for open accounts with the high-
 est bal
 INST first lien amount financed for open accounts with the
 highest bal
 INST first lien open date for open accounts with the highest
 bal
 INST first lien monthly payment for open accounts with
 the highest bal
 INST first lien loan amortization term for open accounts
 with the highest bal
 INST first lien current bal for open accounts with the 2nd
 highest bal
 INST first lien amount financed for open accounts with the
 2nd highest bal
 INST first lien open date for open accounts with the 2nd
 highest bal
 INST first lien monthly payment for open accounts with
 the 2nd highest bal
 INST first lien loan amortization term for open accounts
 with the 2nd highest bal
 INST first lien current bal for open accounts with the 3rd
 highest bal

INST first lien amount financed for open accounts with the
 3rd highest bal
 INST first lien open date for open accounts with the 3rd
 highest bal
 INST first lien monthly payment for open accounts with
 the 3rd highest bal
 INST first lien loan amortization term for open accounts
 with the 3rd highest bal
 Non-INST first lien current bal for open accounts with the
 highest bal
 Non-INST first lien amount financed for open accounts
 with the highest bal
 Non-INST first lien open date for open accounts with the
 highest bal
 Non-INST first lien monthly payment for open accounts
 with the highest bal
 Non-INST first lien loan amortization term for open
 accounts with the highest bal
 Non-INST first lien current bal for open accounts with the
 2nd highest bal
 Non-INST first lien amount financed for open accounts
 with the 2nd highest bal
 Non-INST first lien open date for open accounts with the
 2nd highest bal
 Non-INST first lien monthly payment for open accounts
 with the 2nd highest bal
 Non-INST first lien loan amortization term for open
 accounts with the 2nd highest bal
 Non-INST first lien current bal for open accounts with the
 3rd highest bal
 Non-INST first lien amount financed for open accounts
 with the 3rd highest bal
 Non-INST first lien open date for open accounts with the
 3rd highest bal
 Non-INST first lien monthly payment for open accounts
 with the 3rd highest bal
 Non-INST first lien loan amortization term for open
 accounts with the 3rd highest bal
 INST first lien ECOA weighted number of open accounts
 INST first lien ECOA weighted sum of bal for open
 accounts
 INST home equity loan ECOA weighted number of open
 accounts
 INST home equity loan ECOA weighted sum of bal for
 open accounts
 INST auto ECOA weighted number of open accounts
 INST auto ECOA weighted sum of bal for open accounts
 INST other installment ECOA weighted number of open
 accounts
 INST other installment ECOA weighted sum of bal for
 open accounts
 INST heloc ECOA weighted number of open accounts
 INST heloc ECOA weighted sum of bal for open accounts
 INST bankcard ECOA weighted number of open accounts
 INST bankcard ECOA weighted sum of bal for open
 accounts
 INST other loc ECOA weighted number of open accounts
 INST other loc ECOA weighted sum of bal for open
 accounts
 Non-INST non-finance first lien ECOA weighted number
 of open accounts
 Non-INST non-finance first lien ECOA weighted sum of
 bal for open accounts
 Non-INST non-finance home equity loan ECOA weighted
 number of open accounts
 Non-INST non-finance home equity loan ECOA weighted
 sum of bal for open accounts

Non-INST non-finance auto ECOA weighted number of
 open accounts
 Non-INST non-finance auto ECOA weighted sum of bal
 for open accounts
 Non-INST non-finance other installment ECOA weighted
 number of open accounts
 Non-INST non-finance other installment ECOA weighted
 sum of bal for open accounts
 Non-INST non-finance heloc ECOA weighted number
 of open accounts
 Non-INST non-finance heloc ECOA weighted sum of bal
 for open accounts
 Non-INST non-finance bankcard ECOA weighted number
 of open accounts
 Non-INST non-finance bankcard ECOA weighted sum of
 bal for open accounts
 Non-INST non-finance other loc ECOA weighted number
 of open accounts
 Non-INST non-finance other loc ECOA weighted sum of
 bal for open accounts
 Non-INST finance first lien ECOA weighted number of
 open accounts
 Non-INST finance first lien ECOA weighted sum of bal for
 open accounts
 Non-INST finance home equity loan ECOA weighted
 number of open accounts
 Non-INST finance home equity loan ECOA weighted sum
 of bal for open accounts
 Non-INST finance auto ECOA weighted number of open
 accounts
 Non-INST finance auto ECOA weighted sum of bal for
 open accounts
 Non-INST finance other installment ECOA weighted
 number of open accounts
 Non-INST finance other installment ECOA weighted sum
 of bal for open accounts
 Non-INST finance heloc ECOA weighted number of open
 accounts
 Non-INST finance heloc ECOA weighted sum of bal for
 open accounts
 Non-INST finance bankcard ECOA weighted number of
 open accounts
 Non-INST finance bankcard ECOA weighted sum of bal
 for open accounts
 Non-INST finance other loc ECOA weighted number of
 open accounts
 Non-INST finance other loc ECOA weighted sum of bal
 for open accounts
 # installment trade lines with bal
 # minor derogatory items
 # revolving trades with bal
 # revolving TL 30+ ever
 # revolving/open TL 30+ ever
 Total # of trades
 # trades 30+ ever & derog pub rec
 Percent revolving bal
 Percent revolving/open bal
 Avg bal revolving TL opened last 12 mos
 Avg bal rev/open TL opened last 12 mos
 Average revolving bal
 Months since most recent trade opened
 Most since most recent inq excl 7 days
 Months since oldest revolving TL opened
 Net fraction bank revolving burden
 Net fraction revolving/open burden
 Total revolving bal
 Total revolving/open bal

21

Worst rating revolving trade lines
 Worst rating TL opened last 36 m
 Months since most recent derogatory public record
 Months since most recent 90+ trade line rating
 # of disputed accounts
 Transrisk new account version 2 score
 Adverse action reason codes for transrisk new account score
 Transrisk new account reject tag (D, I, N, X)
 Select disposition (A—passed all selection criteria, R—failed selection criteria)
 Select level (for now, value will always be ACC, but can change if program changes)
 Reject reason (NA2excel—failed, levelacc—passed)
 Ethnicity tag (A—Asian, H—Hispanic, Blank—ethnicity of consumer name is unknown)
 Gender (F—female, M—male, I—name is initials, U—unknown, A—ambiguous)
 Maximum current delinquency
 # accounts rated 30 in the last 6 m
 # accounts rated 60 in the last 6 m
 # accounts rated 90 in the last 6 m
 # accounts rated 30 in the last 12 m
 # accounts rated 60 in the last 12 m
 # accounts rated 90 in the last 12 m
 Months since most recent 30+ trade line delinquency
 Worst trade line rating last 12 m
 Total assets
 Total deposits
 Age of consumer based on credit data (values 18-99)
 Age of consumer is actual or not (B=actual or T=calculated)
 Fleet first lien number of open accounts
 Fleet first lien number of open accounts opened w/in the last 3 m
 Fleet first lien sum of bal for open accounts
 Fleet first lien sum of bal for open accounts opened w/in 3 m
 Fleet first lien number of accounts currently 90+ verified w/in the last 6 m
 Fleet first lien sum of bal currently 90+ verified w/in the last 6 m
 Fleet first lien sum of amount financed for open accounts
 Fleet first lien sum of amount financed for open accounts open w/in 3 m
 Fleet first lien age of oldest trade
 Fleet home equity loan number of open accounts
 Fleet home equity loan number of open accounts opened w/in the last 3 m
 Fleet home equity loan sum of bal for open
 Fleet home equity loan sum of bal for open accounts opened w/in 3 m
 Fleet home equity loan number of accounts currently 90+ verified w/in the last 6 m
 Fleet home equity loan sum of bal currently 90+ verified w/in the last 6 m
 Fleet home equity loan sum of amount financed for open accounts
 Fleet home equity loan sum of amount financed for open accounts open with 3 m
 Fleet auto number of open accounts
 Fleet auto number of open accounts opened w/in the last 3 m
 Fleet auto sum of bal for open accounts
 Fleet auto sum of bal for open accounts opened w/in 3 m
 Fleet auto number of accounts currently 90+ verified w/in the last 6 m

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Fleet auto sum of bal currently 90+ verified w/in the last 6 m
 Fleet auto sum of amount financed for open accounts
 Fleet auto sum of amount financed for open accounts open with 3 m
 Fleet other installment number of open accounts
 Fleet other installment number of open accounts opened w/in the last 3 m
 Fleet other installment sum of bal for open accounts
 Fleet other installment sum of bal for open accounts opened w/in 3 m
 Fleet other installment number of accounts currently 90+ verified w/in the last 6 m
 Fleet other installment sum of bal currently 90+ verified w/in the last 6 m
 Fleet other installment sum of amount financed for open accounts
 Fleet other installment sum of amount financed for open accounts open with 3 m
 Fleet heloc number of open accounts
 Fleet heloc number of open accounts in last 3 month
 Fleet heloc sum of bal for open accounts
 Fleet heloc sum of bal for open accounts opened w/in 3 m
 Fleet heloc number of accounts currently 90+ verified w/in the last 6 m
 Fleet heloc sum of bal currently 90+ verified w/in the last 6 m
 Fleet heloc sum of credit limit for open accounts
 Fleet heloc sum of credit limit for open accounts open w/in 3 m
 Fleet heloc number of open accounts with a zero bal
 Fleet heloc number of open accounts opened w/in the last 3 m
 Fleet bankcard number of open accounts
 Fleet bankcard number of open accounts opened w/in the last 3 m
 Fleet bankcard sum of bal for open accounts
 Fleet bankcard sum of bal for open accounts opened w/in 3 m
 Fleet bankcard number of accounts currently 90+ verified w/in the last 6 m
 Fleet bankcard sum of bal currently 90+ verified w/in the last 6 m
 Fleet bankcard sum of credit limit for open accounts
 Fleet bankcard sum of credit limit for open accounts open with 3 m
 Fleet bankcard number of open accounts with a zero bal
 Fleet bankcard number of open account opened w/in the last 3 month with a zero bal
 Fleet bankcard age of oldest trade
 Fleet bankcard age of youngest trade
 Fleet bankcard highest open bal
 Fleet bankcard credit limit for highest open bal
 Fleet other loc number of open accounts
 Fleet other loc number of open accounts opened w/in the last 3 m
 Fleet other loc sum of bal for open accounts
 Fleet other loc sum of bal for open accounts opened w/in 3 m
 Fleet other loc number of accounts currently 90+ verified w/in the last 6 m
 Fleet other loc sum of bal currently 90+ verified w/in the last 6 m
 Fleet other loc sum of credit limit for open accounts
 Fleet other loc sum of credit limit for open accounts open with 3 m
 Fleet other loc number of open accounts with a zero bal

23

Fleet other loc number of open accounts opened w/in the last 3 m with a zero bal

Number of fleet inquiries w/in 3 m

Fleet first lien current bal for open accounts with the highest bal

Fleet first lien amount financed for open accounts with the highest bal

Fleet first lien open date for open accounts with the highest bal

Fleet first lien monthly payment for open accounts with the highest bal

Fleet first lien loan amortization term for open accounts with the highest bal

Fleet first lien current bal for pen accounts with the 2nd highest bal

Fleet first lien amount financed for open accounts with the 2nd highest bal

Fleet first lien open date for open accounts with the 2nd highest bal

Fleet first lien monthly payment for open accounts with the 2nd highest bal

Fleet first lien loan amortization term for open accounts with the 2nd highest bal

Fleet first lien current bal for open accounts with the 3rd highest bal

Fleet first lien amount financed for open accounts with the 3rd highest bal

Fleet first lien open date for open accounts with the 3rd highest bal

Fleet first lien monthly payment for open accounts with the 3rd highest bal

Fleet first lien loan amortization term for open accounts with the 3rd highest bal

Fleet first lien ECOA weighted number of open accounts

Fleet first lien ECOA weighted sum of bal for open accounts

Fleet home equity loan ECOA weighted number of open accounts

Fleet home equity loan ECOA weighted sum of bal for open accounts

Fleet auto ECOA weighted number of open accounts

Fleet auto ECOA weighted sum of bal for open accounts

Fleet other installment ECOA weighted number of open accounts

Fleet other installment ECOA weighted sum of bal for open accounts

Fleet heloc ECOA weighted number of open accounts

Fleet heloc ECOA weighted sum of bal for open accounts

Fleet bankcard ECOA weighted number of open accounts

Fleet bankcard ECOA weighted sum of bal for open accounts

Fleet other loc ECOA weighted number of open accounts

Fleet other loc ECOA weighted sum of bal for open accounts

Bankcard credit limit for open account with the highest credit limit

Bankcard balance for open account with the highest credit limit

Bankcard open date for open account with the highest credit limit

Bankcard credit limit for open account with the 2nd highest credit limit

Bankcard balance for open account with the 2nd highest credit limit

Bankcard open date for open account with the 2nd highest credit limit

24

Bankcard credit limit for open account with the 3rd highest credit limit

Bankcard balance for open account with the 3rd highest credit limit

Bankcard open date for open account with the 3rd highest credit limit

Bankcard credit limit for open account with the 4th highest credit limit

Bankcard balance for open account with the 4th highest credit limit

Bankcard open date for open account with the 4th highest credit limit

Bankcard credit limit for open account with the 5th highest credit limit

Bankcard balance for open account with the 5th highest credit limit

Bankcard open date for open account with the 5th highest credit limit

Bankcard credit limit for open account with the 6th highest credit limit

Bankcard balance for open account with the 6th highest credit limit

Bankcard open date for open account with the 6th highest credit limit

INST bankcard indicator for top 6 bankcards by credit limit

Fleet bankcard indicator for top 6 bankcards by credit limit

Heloc credit limit for open account with the highest credit limit

Heloc balance for open account with the highest credit limit

Heloc open date for open account with the highest credit limit

Heloc credit limit for open account with the 2nd highest credit limit

Heloc balance for open account with the 2nd highest credit limit

Heloc open date for open account with the 2nd highest credit limit

INST heloc indicator for top 2 helocs by credit limit

Fleet heloc indicator for top 2 helocs by credit limit

Heloan credit limit for open account with the highest credit limit

Heloan balance for open account with the highest credit limit

Heloan open date for open account with the highest credit limit

Heloan credit limit for open account with the 2nd highest credit limit

Heloan balance for open account with the 2nd highest credit limit

Heloan open date for open account with the 2nd highest credit limit

INST heloan indicator for top 2 heloans by credit limit

Fleet heloan indicator for top 2 heloans by credit limit

of months since last address change

Zip code of previous address

SSN type flag

accounts with currently bal>0

Total current bal of all accounts excluding mortgage

Number of accounts rated 30+ ever

Number of derogatory public records

Number of public record bankruptcies

of open accounts

Total public record amounts

Total collection amounts ever owed

Latitude and longitude

Latitude and longitude flag

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TU income estimator
 TU income estimator code
 TU debt to income estimator
 Opt-out flag
 Empirica score reject tag
 State fips code
 County fips code
 Census tract
 MSA code
 Estimated home value based on banton score model
 Number of INST trades ever
 Number of fleet trades ever
 Peer group first lien number of open accounts
 Peer group first lien number of open accounts opened w/in
 the last 3 m
 Peer group first lien sum of bal for open accounts
 Peer group first lien sum of bal for open accounts opened
 w/in 3 m
 Peer group first lien number of accounts currently 90+
 verified w/in the last 6 m
 Peer group first lien sum of bal currently 90+ verified w/in
 the last 6 m
 Peer group first lien sum of amount financed for open
 accounts
 Peer group first lien sum of amount financed for open
 accounts open w/in 3 m
 Peer group first lien age of oldest trade
 Peer group first lien current bal for open accounts with the
 highest bal
 Peer group first lien amount financed for open accounts
 with the highest bal
 Peer group first lien open date for open accounts with the
 highest bal
 Peer group first lien current bal for open accounts with the
 2nd highest bal
 Peer group first lien amount financed for open accounts
 with the 2nd highest bal
 Peer group first lien open date for open accounts with the
 2nd highest bal
 Peer group first lien ECOA weighted number of open
 accounts
 Peer group first lien ECOA weighted sum of bal for open
 accounts
 Number or peer group inquiries with kob of B w/in 3 m
 Number of peer group inquiries with kob of F or Q w/in 3
 m
 Peer group bankcard indicator for top 6 bankcards by credit
 limit
 Peer group heloc indicator for top 2 helocs by credit limit
 Peer group heloan indicator for top 2 helocs by credit limit
 INST first lien ECOA indicator for open accounts with the
 highest bal
 INST first lien ECOA indicator for open accounts with the
 2nd highest bal
 Non-INST first lien ECOA indicator for open accounts
 with the highest bal
 Non-INST first lien ECOA indicator for open accounts
 with the 2nd highest bal
 Fleet first lien ECOA indicator for open accounts with the
 highest bal
 Fleet first lien ECOA indicator for open accounts with the
 2nd highest bal
 Peer group first lien ECOA indicator for open accounts
 with the highest bal
 Peer group first lien ECOA indicator for open accounts
 with the 2nd highest bal

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Bankcard ECOA indicator for open account with the high-
 est credit limit
 Bankcard ECOA indicator for open account with the 2nd
 highest credit limit
 5 Bankcard ECOA indicator for open account with the 3rd
 highest credit limit
 Bankcard ECOA indicator for open account with the 4th
 highest credit limit
 Bankcard ECOA indicator for open account with the 5th
 highest credit limit
 10 Bankcard ECOA indicator for open account with the 6th
 highest credit limit
 Heloc ECOA indicator for open account with the highest
 credit limit
 15 Heloc ECOA indicator for open account with the 2nd high-
 est credit limit
 Heloan ECOA indicator for open account with the highest
 credit limit
 Heloan ECOA indicator for open account with the 2nd
 highest credit limit
 20 Bankcard raw cl for open acc w/1st highest cl
 Bankcard raw cl for open acc w/2nd highest cl
 Bankcard raw cl for open acc w/3rd highest cl
 Bankcard raw cl for open acc w/4th highest cl
 25 Bankcard raw cl for open acc w/5th highest cl
 Bankcard raw cl for open acc w/6th highest cl
 Heloc raw cl for open acc w/1st highest cl
 Heloc raw cl for open acc w/2nd highest cl
 City
 30 State
 Zip first 5 digits code
 INST on us flag
 Type of tax identification code
 INST first mortgage number of open accounts
 INST first mortgage sum of balances for open accounts
 INST first mortgage sum of originations for open accounts
 Months on book for oldest open first mortgage account
 Months on book for youngest open first mortgage account
 INST home equity loan number of open accounts
 40 INST home equity loan sum of balances for open accounts
 INST home equity loan sum of originations for open
 accounts
 Months on book for oldest open home equity loan account
 Months on book for youngest open home equity loan
 45 account
 INST auto number of open accounts
 INST auto sum of balances for open accounts
 INST auto sum of originations for open accounts
 Months on book for oldest open auto account
 50 Months on book for youngest open auto account
 INST other installment number of open accounts
 INST other installment sum of balances for open accounts
 INST other installment sum of originations for open
 accounts
 55 Months on book for oldest open other installment account
 Months on book for youngest open other installment
 account
 INST heloc number of open accounts
 INST heloc sum of balances for open accounts
 60 INST heloc sum of originations for open accounts
 Months on book for oldest open heloc account
 Months on book for youngest open heloc account
 INST bankcard number of open accounts
 INST bankcard sum of balances for open accounts
 65 INST bankcard sum of originations for open accounts
 Months on book for oldest open bankcard account
 Months on book for youngest open bankcard account

27

INST other loc number of open accounts
 INST other loc sum of balances for open accounts
 INST other loc sum of originations for open accounts
 Months on book for oldest open other loc account
 Months on book for youngest open other loc account 5
 INST any deposit number of open accounts
 INST any deposit sum of balances for open accounts
 Months on book for oldest open deposit account
 Months on book for youngest open deposit account
 INST any investment number of open accounts 10
 INST any investment sum of balances for open accounts
 Months on book for oldest open investment account
 Months on book for youngest open investment account
 Bureau refresh score
 INST dfs auto number of open accounts 15
 INST dfs auto sum of balances for open accounts
 INST dfs speciality number of open accounts
 INST dfs speciality sum of balances for open accounts
 INST heloc number of increase accounts in last 3 month
 INST heloc sum of balances for increase accounts in last 3 20
 months
 INST heloc sum of line amount for increase accounts in last
 3 months
 INST heloc sum of incremental line amount for increase
 accounts in last 3 months 25
 INST secured bankcard number of open accounts
 INST secured bankcard sum of balances for open accounts
 INST secured bankcard sum of line amount for open
 accounts
 INST checking number of open accounts 30
 INST checking sum of balances for open accounts
 INST CD number of open accounts
 INST CD sum of balances for open accounts
 INST IRA number of open accounts
 INST IRA sum of balances for open accounts 35
 INST money market number of open accounts
 INST money market sum of balances for open accounts
 INST regular savings number of open accounts
 INST regular savings sum of balances for open accounts
 INST annuity number of open accounts 40
 INST annuity sum of balances for open accounts
 INST brokerage number of open accounts
 INST brokerage sum of balances for open accounts
 INST money manager number of open accounts
 INST money manager sum of balances for open accounts 45
 INST number of ATM/check cards
 INST first mortgage nibt amount for open accounts
 INST home equity loan nibt amount for open accounts
 INST auto nibt amount for open accounts
 INST other installment nibt amount for open accounts 50
 INST heloc nibt amount for open accounts
 INST bankcard nibt amount for open accounts
 INST other loc nibt amount for open accounts
 INST any deposit nibt amount for open accounts
 INST any investment nibt amount for open accounts 55
 Insufficient funds fees amount
 Overdraft charge amount
 Fully allocated net income amount
 Net interest income amount
 Non interest income amount 60
 Non interest expense amount
 # of months party has had a bac relationship
 Name form code
 Service level indicator code
 Sales and service sales channel code 65
 Plus code
 Number of premier sales channel accounts

28

Number of private bank sales channel accounts
 Number of small business sales channel accounts
 Associate indicator
 Customer age
 Gender
 Seg_cd when seg_typ_cd=pprf
 Seg_cd when seg_typ_cd=nedatt
 Seg_cd when seg_typ_cd=ciggrp
 Seg_cd when seg_typ_cd=potndep
 Seg_cd when seg_typ_cd=potnin
 Seg_cd when seg_typ_cd=potninv
 Seg_cd when seg_typ_cd=potntotbl
 Seg_cd when seg_typ_cd=valuquad
 Realized profit amount
 Realized profit deposit amount
 Realized profit investment amount
 Realized profit loan amount
 Unrealized total balance amount
 Unrealized deposit amount
 Unrealized investment amount
 Unrealized loan amount
 Unrealized profit amount
 Unrealized profit deposit amount
 Unrealized profit investment amount
 Unrealized profit loan amount 25
 Ethnicity code
 Ethnicity code
 Market segment code
 Party collection child indicator
 Party collection demographic cluster code
 Party collection demographic cluster group code
 Home purchase amount
 Home market value amount
 Available home equity amount
 Loan to value percent 35
 Home owner indicator
 Home owner rent code
 Number of service calls to the vru system
 Number of times logged in to online banking/billpay
 Premier migration quarters on book
 Loan purpose
 Loan channel
 Application date
 Amount requested
 Score
 Custom score
 Actual ltv
 Actual dti
 Final application status
 Interest rate
 Days to fund
 Line increase flag
 Allowable ltv
 Allowable dti
 INST lien position
 Total lien amount
 Prequal flag
 Application date
 Amount requested
 Score 60
 Custom score
 Actual ltv
 Actual dti
 Final application status
 Interest rate
 Days to fund
 Number of applicants

Escrow deposit at closing
 Property zip code
 Loan purpose
 On us refinance transaction indicator
 Property sales price
 Total ltv
 Incomplete application decline
 Asset related decline
 Bankruptcy related decline
 Credit report delinquency decline
 Employment related decline
 Income related decline
 Insufficient credit reference decline
 Other decline
 Derogatory public record decline
 Property related decline
 Score decline
 Credit card channel
 Mtg product
 Home equity product
 INST bankcard co-brand number of open accounts
 INST bankcard co-brand sum of balances for open accounts
 INST agent/affinity number of open accounts
 INST bankcard agent/affinity sum of balances for open accounts
 Total teller deposit quantity
 Total teller withdrawal quantity
 Total ATM deposit quantity
 Total ATM withdrawal quantity
 Max teller deposit quantity
 Max teller withdrawal quantity
 Max service calls to the vru system
 Max times logged in to online banking/billpay
 Max ATM deposit quantity
 Max ATM withdrawal quantity
 He loan channel
 Fbf on us flag
 Heloc increase flag
 Heloc increase months on book
 Heloc increase incremental line amount
 Value Added Attributes
 Weighted INST auto sum of bal for open accounts
 Weighted INST auto sum of bal currently 90+ verified w/in the last 6 m
 Weighted INST auto sum of amount financed for open accounts
 Weighted INST auto number of open accounts
 Weighted INST auto number of accounts currently 90+ verified w/in the last 6 m
 Weighted non-INST finance auto sum of
 Weighted non-INST finance auto sum of bal currently 90+ verified w/in 6 m
 Weighted non-INST finance auto sum of amount financed for open accounts
 Weighted non-INST finance auto number of open accounts
 Weighted non-INST finance auto number of accounts currently 90+ verified w/in 6 m
 Weighted fleet auto sum of bal for open accounts
 Weighted fleet auto sum of bal currently 90+ verified w/in last 6 m
 Weighted fleet auto sum of amount financed for open accounts
 Weighted fleet auto number of open accounts
 Weighted fleet auto number of accounts currently 90+ verified w/in the last 6 m

Weighted non-INST non-finance auto sum of bal for open accounts
 Weighted non-INST non-finance auto sum of bal currently 90+ verified w/in 6 m
 5 Weighted non-INST non-finance auto sum of amount financed for open accounts
 Weighted non-INST non-finance auto number of open accounts
 10 Weighted non-INST non-finance auto number of
 Weighted non-INST total auto sum of
 Weighted non-INST total auto sum of bal currently 90+ verified w/in 6 m
 Weighted non-INST total auto sum of amount financed for open accounts
 15 Weighted non-INST total auto number of open accounts
 Weighted non-INST total auto number of accounts currently 90+ verified w/in 6 m
 Weighted INST credit card sum of bal for open accounts
 20 Weighted INST credit card sum of bal currently 90+ verified w/in the last 6 m
 Weighted INST credit card sum of credit limit for open accounts
 Weighted INST credit card number of open accounts
 25 Weighted INST credit card number of accounts currently 90+ verified w/in the last 6 m
 Weighted INST credit card number of open accounts with a zero bal
 Weighted non-INST finance credit card sum of bal for open accounts
 30 accounts
 Weighted non-INST finance credit card sum of bal currently 90+ verified w/in 6 m
 Weighted non-INST finance credit card sum of credit limit for open accounts
 35 Weighted non-INST finance credit card number of open accounts
 Weighted non-INST finance credit card number of accounts currently 90+ verified w/in 6 m
 Weighted non-INST finance credit card number of open accounts with a zero bal
 40 accounts
 Weighted fleet credit card sum of bal for open accounts
 Weighted fleet credit card sum of bal currently 90+ verified w/in the last 6 m
 Weighted fleet credit card sum of credit limit for open accounts
 45 accounts
 Weighted fleet credit card number of open accounts
 Weighted fleet credit card number of accounts currently 90+ verified w/in the last 6 m
 Weighted fleet credit card number of open accounts with a zero balance
 50
 Weighted non-INST non-finance credit card sum of bal for open accounts
 Weighted non-INST non-finance credit card sum of
 Weighted non-INST non-finance credit card sum of credit limit for open accounts
 55
 Weighted non-INST non-finance credit card number of open accounts
 Weighted non-INST non-finance credit card number of accounts currently 90+ verified w/in 6 m
 60 Weighted non-INST non-finance credit card number of open accounts with a zero bal
 Weighted non-INST total credit card sum of bal for open accounts
 Weighted non-INST total credit card sum of bal currently 90+ verified w/in 6 m
 65 Weighted non-INST total credit car sum of credit limit for open accounts

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Weighted non-INST total credit card number of open accounts

Weighted non-INST total credit card number of accounts currently 90+ verified w/in 6 m

Weighted non-INST total credit card number of open accounts with a zero bal

Weighted INST heloc sum of bal for open accounts

Weighted INST heloc sum of bal currently 90+ verified w/in the last 6 m

Weighted INST heloc sum of credit limit for open accounts

Weighted INST heloc number of open accounts

Weighted INST heloc number of accounts currently 90+ verified w/in the last 6 m

Weighted INST heloc number of open accounts with a zero bal

Weighted non-INST finance heloc sum of bal for open accounts

Weighted non-INST finance heloc sum of bal currently 90+ verified w/in 6 m

Weighted non-INST finance heloc sum of credit limit for open accounts

Weighted non-INST finance heloc number of open accounts

Weighted non-INST finance heloc number of accounts currently 90+ verified w/in 6 m

Weighted non-INST finance heloc number open accounts with a zero bal

Weighted fleet heloc sum of bal for open accounts

Weighted fleet heloc sum of bal currently 90+ verified w/in the last 6 m

Weighted fleet heloc sum of credit limit for open accounts

Weighted fleet heloc number of open accounts

Weighted fleet heloc number of accounts currently 90+ verified w/in the last 6 m

Weighted fleet heloc number of open accounts with a zero bal

Weighted non-INST non-finance heloc sum of bal for open accounts

Weighted non-INST non-finance heloc sum of bal currently 90+ verified w/in 6 m

Weighted non-INST non-finance heloc sum of credit limit for open accounts

Weighted non-INST non-finance heloc number of open accounts

Weighted non-INST non-finance heloc number of accounts currently 90+ verified w/in 6 m

Weighted non-INST non-finance heloc number of open accounts with a zero bal

Weighted non-INST total heloc sum of bal for open accounts

Weighted non-INST total heloc sum of bal currently 90+ verified w/in 6 m

Weighted non-INST total heloc sum of credit limit for open accounts

Weighted non-INST total heloc number of open accounts

Weighted non-INST total heloc number of accounts currently 90+ verified w/in 6 m

Weighted non-INST total heloc number of open accounts with a zero bal

Weighted INST home equity loan sum of bal for open

Weighted INST home equity loan sum of bal currently 90+ verified w/in the last 6 m

Weighted INST home equity loan sum of amount financed for open accounts

Weighted INST home equity loan number of open accounts

Weighted INST home equity loan number of accounts currently 90+ verified w/in the last 6 m

32

Weighted non-INST finance home equity loan sum of bal for open accounts

Weighted non-INST finance home equity loan sum of bal currently 90+ verified w/in 6 m

Weighted non-INST finance home equity loan sum of amount financed for open accounts

Weighted non-INST finance home equity loan number of open accounts

Weighted non-INST finance home equity loan number of accounts currently 90+ verified w/in 6 m

Weighted fleet home equity loan sum of bal for open

Weighted fleet home equity loan sum of bal currently 90+ verified w/in the last 6 m

Weighted fleet home equity loan sum of amount financed for open accounts

Weighted fleet home equity loan number of open accounts

Weighted fleet home equity loan number of accounts currently 90+ verified w/in the last 6 m

Weighted non-INST non-finance home equity loan sum of bal for open accounts

Weighted non-INST non-finance home equity loan sum of bal currently 90+ verified w/in 6 m

Weighted non-INST non-finance home equity loan sum of amount financed for open accounts

Weighted non-INST non-finance home equity loan number of open accounts

Weighted non-INST non-finance home equity loan number of accounts currently 90+ verified w/in 6 m

Weighted non-INST total home equity loan sum of bal for open accounts

Weighted non-INST total home equity loan sum of bal currently 90+ verified w/in 6 m

Weighted non-INST total home equity loan sum of amount financed for open accounts

Weighted non-INST total home equity loan number of open accounts

Weighted non-INST total home equity loan number of accounts currently 90+ verified w/in 6 m

Weighted INST other installment sum of bal for open accounts

Weighted INST other installment sum of bal currently 90+ verified w/in the last 6 m

Weighted INST other installment sum of amount financed for open accounts

Weighted INST other installment number of open accounts

Weighted INST other installment number of accounts currently 90+ verified w/in the last 6 m

Weighted non-INST finance other installment sum of bal for open accounts

Weighted Non-INST finance other installment sum of bal currently 90+ verified w/in 6 m

Weighted non-INST finance other installment sum of amount financed for open accounts

Weighted non-INST finance other installment number of open accounts

Weighted non-INST finance other installment number of accounts currently 90+ verified w/in 6 month

Weighted Fleet other installment sum of bal for open accounts

Weighted fleet other installment sum of bal currently 90+ verified w/in the last 6 m

Weighted fleet other installment sum of amount financed for open accounts

Weighted fleet other installment number of open accounts

Weighted fleet other installment number of accounts currently 90+ verified w/in the last 6 m

33

Weighted non-INST non-finance other installment sum of bal for open accounts

Weighted non-INST non-finance other installment sum of bal currently 90+ verified w/in 6 m

Weighted non-INST non-finance other installment sum of amount financed for open accounts

Weighted non-INST non-finance other installment number of open accounts

Weighted non-INST non-finance other installment number of accounts currently 90+ verified w/in 6 m

Weighted non-INST total other installment sum of bal for open accounts

Weighted non-INST total other installment sum of bal currently 90+ verified w/in 6 m

Weighted non-INST total other installment sum of amount financed for open accounts

Weighted non-INST total other installment number of open accounts

Weighted non-INST total other installment number of accounts currently 90+ verified w/in 6 month

Weighted INST other loc sum of bal for open accounts

Weighted INST other loc sum of bal currently 90+ verified w/in the last 6 m

Weighted INST other loc sum of credit limit for open accounts

Weighted INST other loc number of open accounts

Weighted INST other loc number of accounts currently 90+ verified w/in the last 6 m

Weighted INST other loc number of open accounts with a zero bal

Weighted non-INST finance other loc sum of bal for open accounts

Weighted non-INST finance other loc sum of bal currently 90+ verified w/in 6 m

Weighted non-INST finance other loc sum of credit limit for open accounts

Weighted non-INST finance other loc number of open accounts

Weighted non-Inst finance other loc number of accounts currently 90+ verified w/in 6 m

Weighted non-INST finance other loc number of open accounts with a zero bal

Weighted fleet other loc sum of bal for open accounts

Weighted fleet other loc sum of bal currently 90+ verified w/in the last 6 m

Weighted fleet other loc sum of credit limit for open accounts

Weighted fleet other loc number of open accounts

Weighted fleet other loc number of accounts currently 90+ verified w/in the last 6 m

Weighted fleet other loc number of open accounts with a zero bal

Weighted non-INST non-finance other loc sum of bal for open accounts

Weighted non-INST non-finance other loc sum of bal currently 90+ verified w/in 6 m

Weighted non-INST non-finance other loc sum of credit limit for open accounts

Weighted non-INST non-finance other loc number of open accounts

Weighted non-INST non-finance other loc number of accounts currently 90+ verified w/in 6 m

Weighted non-INST non-finance other loc number of open accounts with a zero bal

Weighted non-INST total other loc sum of bal for open accounts

34

Weighted non-INST total other loc sum of bal currently 90+ verified w/in 6 m

Weighted non-INST total other loc sum of credit limit for open accounts

Weighted non-INST total other loc number of open accounts

Weighted non-INST total other loc number of accounts currently 90+ verified w/in 6 m

Weighted non-INST total other loc number of open accounts with a zero bal

Weighted INST first lien sum of bal for open accounts

Weighted INST first lien sum of bal currently 90+ verified w/in the last 6 m

Weighted INST first lien sum of amount financed for open accounts

Weighted INST first lien number of open accounts

Weighted INST first lien number of accounts currently 90+ verified w/in the last 6 m

Weighted non-INST finance first lien sum of bal for open accounts

Weighted non-INST finance first lien sum of bal currently 90+ verified w/in 6 m

Weighted non-INST finance first lien sum of amount financed for open accounts

Weighted non-INST finance first lien number of open accounts

Weighted non-INST finance first lien number of accounts currently 90+ verified w/in 6 m

Weighted fleet first lien sum of bal for open accounts

Weighted fleet first lien sum of bal currently 90+ verified w/in the last 6 m

Weighted fleet first lien sum of amount financed for open accounts

Weighted fleet first lien number of open accounts

Weighted fleet first lien number of accounts currently 90+ verified w/in the last 6 m

Weighted non-INST non-finance first lien sum of bal for open accounts

Weighted non-INST non-finance first lien sum of bal currently 90+ verified w/in 6 m

Weighted non-INST non-finance first lien sum of amount financed for open accounts

Weighted non-INST non-finance first lien number of open accounts

Weighted non-INST non-finance first lien number of accounts currently 90+ verified w/in 6 m

Weighted non-INST total first lien sum of bal for open accounts

Weighted non-INST total first lien sum of bal currently 90+ verified w/in 6 m

Weighted non-INST total first lien sum of amount financed for open accounts

Weighted non-INST total first lien number of open accounts

Weighted non-INST total first lien number of accounts currently 90+ verified w/in 6 m

Weighted INST dfs auto number of open accounts

Weighted INST dfs auto sum of bal for open accounts

Weighted INST secured credit card number of open accounts

Weighted INST secured credit car sum of bal for open accounts

Weighted INST heloc number of increase accounts in last 3 month

Weighted INST heloc sum of balances for increase accounts in last 3 months

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Weighted INST heloc sum of line of amount for increase
accounts in last 3 months

Weighted INST heloc sum of incremental line amount for
increase accounts in last 3 months

INST credit customer flag

Non-INST credit customer flag

Duplicate record flag

Census tract calculated flag

Market

Market segment

Estimated FICO

Footprint

Specific embodiments of an invention are disclosed herein.
One of ordinary skill in the computing and financial arts will
quickly recognize that the invention has other applications in
other environments. Many embodiments are possible. The
following claims are in no way intended to limit the scope of
the invention to the specific embodiments described above.

What is claimed is:

1. A system for creating a credit market database for a first
institution, wherein the system populates the credit market
database with information about customers and consumers,
wherein customers are individuals that have an existing rela-
tionship with the first institution and consumers are individ-
uals that have an existing relationship with a second institution,
the system comprising:

a communication device;

a memory device in communication with the communica-
tion device and comprising customer attribute data
stored therein, wherein the customer attribute data com-
prises a plurality of customer entries, each entry of the
plurality of customer entries represents a customer and
includes at least one customer-relationship attribute; and
a processing device in communication with the communi-
cation device and the memory device, wherein the pro-
cessing device is configured to:

use the communication device to:

receive the at least one customer-relationship
attribute, wherein the customer-relationship
attribute is selected by the first institution and
defines an aspect of the relationship between the
first institution and its customers;

receive a plurality of customer values, each corre-
sponding to one or more of the first institution's
customers, each customer value representing at
least one customer-relationship attribute of each
customer;

receive criteria that define a consumer type, wherein
the first institution selects the criteria;

request a list of consumers based on the criteria,
wherein each of the listed consumers matches the
consumer type and wherein each of the listed con-
sumers is an individual that has a relationship with
the second institution;

receive the list of consumers as well as information
about each of the listed consumers;

receive a consumer-relationship attribute that defines
at least one aspect of the relationship between the
listed consumers and the second institution,
wherein the first institution selects the consumer-
relationship attribute so that the system will popu-
late the credit market database with information
about the aspect of the relationship between the
listed consumers and the second institution that is
of interest to the first institution; and

receive a plurality of consumer values, each corre-
sponding to one or more of the listed consumers,

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each consumer value representing at least one con-
sumer-relationship attribute of each listed con-
sumer; and

the processing device further configured to:

determine a value of a value-added attribute corre-
sponding to the customer-relationship attribute,
wherein the value-added attribute corresponding to
the customer-relationship attribute represents the
total value of the customer-relationship attribute
across all of the first institution's customers, the
determining comprising:

determining a weighted value at least in part by
adjusting the customer values based on one or
more scaling factors thereby creating weighted
customer values, and

summing one or more of the weighted customer
values;

determine a value of a value-added attribute corre-
sponding to the consumer-relationship attribute,
wherein the value-added attribute represents the
total value of the consumer-relationship attribute
across all of the listed consumers, the determining
comprising:

determining a weighted value at least in part by
adjusting the consumer values based on one or
more scaling factors thereby creating weighted
consumer values, and

summing one or more of the weighted consumer
values;

develop the credit market database by:

for each individual that is a customer but not a
consumer, populate the credit market database
with the value that represents the individual's
customer-relationship attribute and the value
that represents the value-added attribute corre-
sponding to the customer-relationship attribute;

for each individual that is a consumer but not a
customer, populate the credit market database
with the value that represents the individual's
consumer-relationship attribute and the value
that represents the value-added attribute corre-
sponding to the consumer-relationship attribute;
and

for each individual that is both a consumer and a
customer, populate the credit market database
with the value that represents the individual's
customer-relationship attribute, the value that
represents individual's consumer-relationship
attribute, the value that represents the value-
added attribute corresponding to the customer-
relationship attribute, and the value that repre-
sents the value-added attribute corresponding to
the consumer-relationship attribute.

2. The system of claim 1, wherein the list of consumers
includes individuals that have relationships with all institu-
tions in a relevant market.

3. The system of claim 1, wherein the list of consumers that
match the consumer type as well as the information about
each listed consumer are received from a credit bureau.

4. The system of claim 1, wherein the criteria define a
random sample of all consumers known to the credit bureau.

5. The system of claim 1, wherein the value that represents
a customer's customer-relationship attribute is determined
based on information stored in a customer-data file, which is
maintained by the first institution.

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6. The system of claim 1, wherein one or more of the scaling factors comprises a scaling-up factor representative of a portion of the entire market.

7. The system of claim 6, wherein the scaling-up factor is representative of an entire consumer market.

8. The system of claim 1, wherein one or more of the scaling factors comprises a scaling-down factor.

9. The system of claim 8, wherein the scaling-down factor is configured to account for duplicative data.

10. The system of claim 8, wherein one or more of the scaling factors comprises a scaling-up factor.

11. The system of claim 10, wherein one of the scaling factors comprises both a scaling-down factor and a scaling-up factor.

12. The system of claim 1, wherein, during determining a value of a value-added attribute corresponding to the customer-relationship attribute, the processing device is further configured to:

divide the weighted and summed customer values in order to determine an average weighted customer value and thereby the value of the value-added attribute corresponding to the customer-relationship attribute.

13. The system of claim 1, wherein, during determining a value of a value-added attribute corresponding to the consumer-relationship attribute, the processing device is further configured to:

divide the weighted and summed consumer values in order to determine an average weighted consumer value and thereby the value of the value-added attribute corresponding to the consumer-relationship attribute.

14. The system of claim 1, wherein, during determining a value of a value-added attribute corresponding to the customer-relationship attribute, the processing device is further configured to:

divide the weighted and summed customer values in order to determine an average weighted customer value and thereby the value of the value-added attribute corresponding to the customer-relationship attribute; and wherein, during determining a value of a value-added attribute corresponding to the consumer-relationship attribute, the processing device is further configured to:

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divide the weighted and summed consumer values in order to determine an average weighted consumer value and thereby the value of the value-added attribute corresponding to the consumer-relationship attribute.

15. The system of claim 1, wherein the system is further configured to analyze the credit market database, wherein the processing device is further configured to:

compare the value for the customer-relationship attribute with the value for the value-added attribute corresponding to the customer-relationship attribute in order to demonstrate a relationship between the customer's behavior versus the total market behavior, thereby providing information useful for future product marketing.

16. The system of claim 1, wherein the system is further configured to analyze the credit market database, wherein the processing device is further configured to:

compare the value for the consumer-relationship attribute with the value for the value-added attribute corresponding to the consumer-relationship attribute in order to demonstrate a relationship between the consumer's behavior versus the total market behavior, thereby providing information useful for future product marketing.

17. The system of claim 1, wherein the system is further configured to analyze the credit market database, wherein the processing device is further configured to:

compare the value for the customer-relationship attribute with the value for the value-added attribute corresponding to the customer-relationship attribute in order to demonstrate a relationship between the customer's behavior versus the total market behavior;

compare the value for the consumer-relationship attribute with the value for the value-added attribute corresponding to the consumer-relationship attribute in order to demonstrate a relationship between the consumer's behavior versus the total market behavior; and

compare the customer's behavior versus the total market behavior and the consumer's behavior versus the total market behavior, thereby providing information useful for future product marketing.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 8,271,364 B2
APPLICATION NO. : 11/160117
DATED : September 18, 2012
INVENTOR(S) : William A. Nobili et al.

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

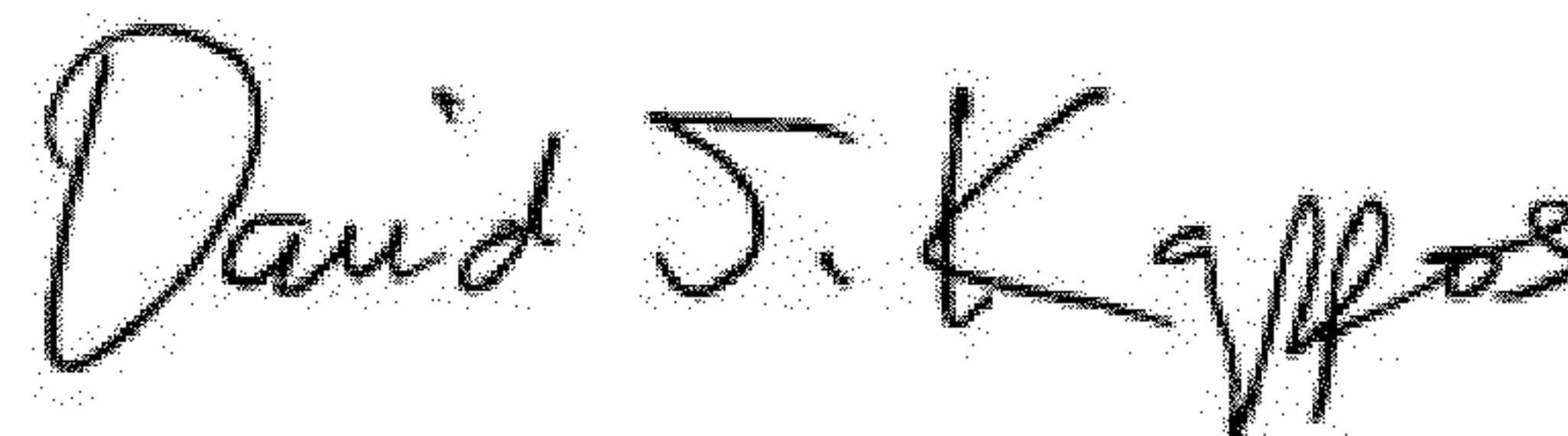
Column 36, Claim 4, Line 62:

The claim dependency of Claim 4 should read as Claim 3.

change "The system of claim 1" to read as follows:

-- The system of claim 3 --

Signed and Sealed this
Eighteenth Day of December, 2012

A handwritten signature in black ink, reading "David J. Kappos". The signature is written in a cursive, flowing style with a large initial "D" and a stylized "K".

David J. Kappos
Director of the United States Patent and Trademark Office